

Appendix L - Toxicity Values

Chemical	Abbreviation	Test Organism Group	Test Organism - Common Name	Species Name	Body Weight (kg)	Duration	Exposure Route	Effect	Endpoint	Result	Units	Data Quality Score (modified Hoek's Scale) (Bailey, et al. 2014)	Source	Reference
Perfluorooctanesulfonic acid	PFOS	Aquatic Plants	Algae	Chlorella vulgaris	NA	14 d	Direct - SW	MLDH - Biochemistry	INDEC	80000	µg/L	61.8	COTOX	Xu, D., X. Chen, and B. Shao. 2017. Oxidative Damage and Cytotoxicity of Perfluorooctane Sulfonate on Chlorella vulgaris. Bull. Environ. Contam. Toxicol. 98(11): 127-132.
Perfluorooctanesulfonic acid	PFOS	Aquatic Plants	Algae	Chlorella vulgaris	NA	14 d	Direct - SW	SODDA - Biochemistry		140000 - 200000	µg/L	61.8	COTOX	Xu, D., X. Chen, and B. Shao. 2017. Oxidative Damage and Cytotoxicity of Perfluorooctane Sulfonate on Chlorella vulgaris. Bull. Environ. Contam. Toxicol. 98(11): 127-132.

Chemical	Abbreviation	Test Organism Group	Test Organism - Common Name	Species Name	Body Weight (kg)	Duration	Exposure Route	Effect	Endpoint	Result	Units	Data Quality Score (modified Hobbs's scale) (Batley, et al. 2014)	Source	Reference
Perfluorooctanesulfonic acid	PFOS	Aquatic Invertebrate	Insect	<i>Chironomus tentans</i>	120 d	Direct - SW	larval growth	NOEC	0.01 mg/L	68.0			Van Gossum H, Bots I, Sijmeters T, Meyer J, Van Wassenbergh S, De Coen W, De Bruyn L. 2009. Behaviour of damselfly larvae (<i>Zygoptera cyathigerum</i>) (Insecta, Odonata) after long term exposure to PFOS. <i>Environ Pollut</i> 127: 1319-1336	
Perfluorooctanesulfonic acid	PFOS	Aquatic Invertebrate	Insect	<i>Chironomus tentans</i>	120 d	Direct - SW	larval survival	NOEC	0.01 mg/L	68.0		Bots et al., 2010 cited in RIVM 2010		
Perfluorooctanesulfonic acid	PFOS	Aquatic Invertebrate	Insect	<i>Chironomus tentans</i>	30 d	Direct - SW	Growth	NOEC	0.022 mg/L	78.4		MacDonald MM, Warne AL, Stock NL, Mabury SA, Solomon KR, Sibley PK (2004) Toxicity of perfluorooctane sulfonic acid and perfluorooctanoate to <i>Chironomus tentans</i> . <i>Environ Toxicol Chem</i> 23:2116-2123		
Perfluorooctanesulfonic acid	PFOS	Aquatic Invertebrate	Insect	<i>Chironomus tentans</i>	30 d	Direct - SW	Growth	NOEC	0.049 mg/L	78.4		Environ Toxicol Chem 23:2116-2123		
Perfluorooctanesulfonic acid	PFOS	Aquatic Invertebrate	Insect	<i>Chironomus tentans</i>	30 d	Direct - SW	Growth	EC10	0.049 mg/L	78.4		MacDonald MM, Warne AL, Stock NL, Mabury SA, Solomon KR, Sibley PK (2004) Toxicity of perfluorooctane sulfonic acid and perfluorooctanoate to <i>Chironomus tentans</i> . <i>Environ Toxicol Chem</i> 23:2116-2123		
Perfluorooctanesulfonic acid	PFOS	Aquatic Invertebrate	Insect	<i>Chironomus tentans</i>	30 d	Direct - SW	Survival	NOEC	0.049 mg/L	78.4		MacDonald MM, Warne AL, Stock NL, Mabury SA, Solomon KR, Sibley PK (2004) Toxicity of perfluorooctane sulfonic acid and perfluorooctanoate to <i>Chironomus tentans</i> . <i>Environ Toxicol Chem</i> 23:2116-2123		
Perfluorooctanesulfonate	PFOS	Aquatic Invertebrate	Midge	<i>Chironomus tentans</i>	30 d	Direct - SW	Mortality and Growth	NOEC	0.0491 mg/L	NS		UNEP (2006). Risk profile on perfluorooctane sulfonate. United Nations Environment Programme, Châtelaine, Switzerland. Accessed 18 November 2014 at http://chem.unep.org/		
Perfluorooctanesulfonic acid	PFOS	Aquatic Invertebrate	Midge	<i>Chironomus tentans</i>	NA	30 d	Direct - SW	Survival	NOEC	0.05 mg/L	78.4	MacDonald MM, Warne AL, Stock NL, Mabury SA, Solomon KR, Sibley PK (2004) Toxicity of perfluorooctane sulfonic acid and perfluorooctanoate to <i>Chironomus tentans</i> . <i>Environ Toxicol Chem</i> 23:2116-2123		
Perfluorooctanesulfonic acid	PFOS	Aquatic Invertebrate	Midge	<i>Chironomus tentans</i>	NA	30 d	Direct - SW	Chlorophyll a	NOEC	0.05 mg/L	78.4	MacDonald MM, Warne AL, Stock NL, Mabury SA, Solomon KR, Sibley PK (2004) Toxicity of perfluorooctane sulfonic acid and perfluorooctanoate to <i>Chironomus tentans</i> . <i>Environ Toxicol Chem</i> 23:2116-2123		
Perfluorooctanesulfonic acid	PFOS	Aquatic Invertebrate	Crustacean	<i>Moina macrocopa</i>	7 d	Direct - SW	number of young/adult	EC10	0.079 mg/L	69.6 RIVM 2010		J.K. Kim Y, Oh S, Ahn B, Jo H, Choi K. 2008. Toxicity of perfluorooctane sulfonic acid and perfluorooctanoic acid on freshwater macroinvertebrates (<i>Daphnia magna</i> and <i>Moina macrocopa</i>) and fish (<i>Oryzias latipes</i>). <i>Environ Toxicol Chem</i> 27: 2159-2168 et al., 2008 cited in RIVM 2010		
Perfluorooctanesulfonic acid	PFOS	Aquatic Invertebrate	Insect	<i>Chironomus tentans</i>	20 d	Direct - SW	Survival	EC10	0.086 mg/L	78.4		Environ Toxicol Chem 23:2116-2123		
Perfluorooctanesulfonic acid	PFOS	Aquatic Invertebrate	Midge	<i>Chironomus tentans</i>	NA	10 d	Direct - SW	Chlorophyll a	EC50/CS0/EC50	0.087 mg/L	78.4	Environ Toxicol Chem 23:2116-2123		
Perfluorooctanesulfonic acid	PFOS	Aquatic Invertebrate	Insect	<i>Chironomus tentans</i>	20 d	Direct - SW	Survival	EC10	0.088 mg/L	78.4		MacDonald MM, Warne AL, Stock NL, Mabury SA, Solomon KR, Sibley PK (2004) Toxicity of perfluorooctane sulfonic acid and perfluorooctanoate to <i>Chironomus tentans</i> . <i>Environ Toxicol Chem</i> 23:2116-2123		
Perfluorooctanesulfonic acid	PFOS	Aquatic Invertebrate	Insect	<i>Chironomus tentans</i>	30 d	Direct - SW	Total Emergence	EC10	0.089 mg/L	78.4		Environ Toxicol Chem 23:2116-2123		
Perfluorooctanesulfonic acid	PFOS	Aquatic Invertebrate	Midge	<i>Chironomus tentans</i>	NA	30 d	Direct - SW	Survival	EC50/CS0/EC50	0.092 mg/L	78.4	MacDonald MM, Warne AL, Stock NL, Mabury SA, Solomon KR, Sibley PK (2004) Toxicity of perfluorooctane sulfonic acid and perfluorooctanoate to <i>Chironomus tentans</i> . <i>Environ Toxicol Chem</i> 23:2116-2123		
Perfluorooctanesulfonic acid	PFOS	Aquatic Invertebrate	Midge	<i>Chironomus tentans</i>	NA	20 d	Direct - SW	Chlorophyll a	EC50/CS0/EC50	0.094 mg/L	78.4	MacDonald MM, Warne AL, Stock NL, Mabury SA, Solomon KR, Sibley PK (2004) Toxicity of perfluorooctane sulfonic acid and perfluorooctanoate to <i>Chironomus tentans</i> . <i>Environ Toxicol Chem</i> 23:2116-2123		
Perfluorooctanesulfonic acid	PFOS	Aquatic Invertebrate	Insect	<i>Chironomus tentans</i>	20 d	Direct - SW	Survival	NOEC	0.095 mg/L	78.4		Environ Toxicol Chem 23:2116-2123		
Perfluorooctanesulfonic acid	PFOS	Aquatic Invertebrate	Insect	<i>Chironomus tentans</i>	20 d	Direct - SW	larval survival	NOEC	0.1 mg/L	68.0		Bots et al., 2010 cited in RIVM 2010		
Perfluorooctanesulfonic acid	PFOS	Aquatic Invertebrate	Insect	<i>Chironomus tentans</i>	10 d	Direct - SW	Survival	EC10	0.108 mg/L	78.4		Environ Toxicol Chem 23:2116-2123		
Perfluorooctanesulfonic acid	PFOS	Aquatic Invertebrate	Crustacean	<i>Moina macrocopa</i>	7 d	Direct - SW	number of young/brood	EC10	0.117 mg/L	69.6 RIVM 2010		J.K. Kim Y, Oh S, Ahn B, Jo H, Choi K. 2008. Toxicity of perfluorooctane sulfonic acid and perfluorooctanoic acid on freshwater macroinvertebrates (<i>Daphnia magna</i> and <i>Moina macrocopa</i>) and fish (<i>Oryzias latipes</i>). <i>Environ Toxicol Chem</i> 27: 2159-2168 et al., 2008 cited in RIVM 2010		
Perfluorooctanesulfonic acid	PFOS	Aquatic Invertebrate	Crustacean	<i>Moina macrocopa</i>	7 d	Direct - SW	number of broods/adult	NOEC	0.129 mg/L	69.6 RIVM 2010		J.K. Kim Y, Oh S, Ahn B, Jo H, Choi K. 2008. Toxicity of perfluorooctane sulfonic acid and perfluorooctanoic acid on freshwater macroinvertebrates (<i>Daphnia magna</i> and <i>Moina macrocopa</i>) and fish (<i>Oryzias latipes</i>). <i>Environ Toxicol Chem</i> 27: 2159-2168 et al., 2008 cited in RIVM 2010		
Perfluorooctanesulfonic acid	PFOS	Aquatic Invertebrate	Crustacean	<i>Moina macrocopa</i>	7 d	Direct - SW	number of young/adult	NOEC	0.132 mg/L	69.6 RIVM 2010		J.K. Kim Y, Oh S, Ahn B, Jo H, Choi K. 2008. Toxicity of perfluorooctane sulfonic acid and perfluorooctanoic acid on freshwater macroinvertebrates (<i>Daphnia magna</i> and <i>Moina macrocopa</i>) and fish (<i>Oryzias latipes</i>). <i>Environ Toxicol Chem</i> 27: 2159-2168 et al., 2008 cited in RIVM 2010		
Perfluorooctanesulfonic acid	PFOS	Aquatic Invertebrate	Crustacean	<i>Moina macrocopa</i>	7 d	Direct - SW	number of broods/adult	NOEC	0.132 mg/L	69.6 RIVM 2010		J.K. Kim Y, Oh S, Ahn B, Jo H, Choi K. 2008. Toxicity of perfluorooctane sulfonic acid and perfluorooctanoic acid on freshwater macroinvertebrates (<i>Daphnia magna</i> and <i>Moina macrocopa</i>) and fish (<i>Oryzias latipes</i>). <i>Environ Toxicol Chem</i> 27: 2159-2168 et al., 2008 cited in RIVM 2010		
Perfluorooctanesulfonic acid	PFOS	Aquatic Invertebrate	Crustacean	<i>Moina macrocopa</i>	7 d	Direct - SW	population growth rate	EC10	0.14 mg/L	69.6 RIVM 2010		J.K. Kim Y, Oh S, Ahn B, Jo H, Choi K. 2008. Toxicity of perfluorooctane sulfonic acid and perfluorooctanoic acid on freshwater macroinvertebrates (<i>Daphnia magna</i> and <i>Moina macrocopa</i>) and fish (<i>Oryzias latipes</i>). <i>Environ Toxicol Chem</i> 27: 2159-2168 et al., 2008 cited in RIVM 2010		
Perfluorooctanesulfonic acid	PFOS	Aquatic Invertebrate	Water Flea	<i>Daphnia magna</i>	NA	48 h	Direct - SW	Mortality	NOEC	0.8 mg/L	78.4	Environ Toxicol Chem 23:2116-2123		
Perfluorooctanesulfonic acid	PFOS	Aquatic Invertebrate	Crustacean	<i>Daphnia magna</i>	21 d	Direct - SW	reproduction growth rate	EC10	1.1 mg/L	69.6 RIVM 2010		J.K. Kim Y, Oh S, Ahn B, Jo H, Choi K. 2008. Toxicity of perfluorooctane sulfonic acid and perfluorooctanoic acid on freshwater macroinvertebrates (<i>Daphnia magna</i> and <i>Moina macrocopa</i>) and fish (<i>Oryzias latipes</i>). <i>Environ Toxicol Chem</i> 27: 2159-2168 et al., 2008 cited in RIVM 2010		
Perfluorooctanesulfonic acid	PFOS	Aquatic Invertebrate	Insect	<i>Chironomus tentans</i>	15 d	Direct - SW	hatching	NOEC	1.1 mg/L	68.0		Bots et al., 2010 cited in RIVM 2010		
Perfluorooctanesulfonic acid	PFOS	Aquatic Invertebrate	Insect	<i>Chironomus tentans</i>	21 d	Direct - SW	Adult Survival	EC10	1.1 mg/L	69.6 RIVM 2010		J.K. Kim Y, Oh S, Ahn B, Jo H, Choi K. 2008. Toxicity of perfluorooctane sulfonic acid and perfluorooctanoic acid on freshwater macroinvertebrates (<i>Daphnia magna</i> and <i>Moina macrocopa</i>) and fish (<i>Oryzias latipes</i>). <i>Environ Toxicol Chem</i> 27: 2159-2168 et al., 2008 cited in RIVM 2010		
Perfluorooctanesulfonic acid	PFOS	Aquatic Invertebrate	Crustacean	<i>Daphnia magna</i>	21 d	Direct - SW	number of young/adult	EC10	1.1 mg/L	69.6 RIVM 2010		J.K. Kim Y, Oh S, Ahn B, Jo H, Choi K. 2008. Toxicity of perfluorooctane sulfonic acid and perfluorooctanoic acid on freshwater macroinvertebrates (<i>Daphnia magna</i> and <i>Moina macrocopa</i>) and fish (<i>Oryzias latipes</i>). <i>Environ Toxicol Chem</i> 27: 2159-2168 et al., 2008 cited in RIVM 2010		
Perfluorooctanesulfonic acid	PFOS	Aquatic Invertebrate	Crustacean	<i>Moina macrocopa</i>	7 d	Direct - SW	Adult Survival	EC10	1.1 mg/L	69.6 RIVM 2010		J.K. Kim Y, Oh S, Ahn B, Jo H, Choi K. 2008. Toxicity of perfluorooctane sulfonic acid and perfluorooctanoic acid on freshwater macroinvertebrates (<i>Daphnia magna</i> and <i>Moina macrocopa</i>) and fish (<i>Oryzias latipes</i>). <i>Environ Toxicol Chem</i> 27: 2159-2168 et al., 2008 cited in RIVM 2010		
Perfluorooctanesulfonic acid	PFOS	Aquatic Invertebrate	Crustacean	<i>Daphnia magna</i>	21 d	Direct - SW	steps to first brood	NOEC	1.25 mg/L	69.6 RIVM 2010		J.K. Kim Y, Oh S, Ahn B, Jo H, Choi K. 2008. Toxicity of perfluorooctane sulfonic acid and perfluorooctanoic acid on freshwater macroinvertebrates (<i>Daphnia magna</i> and <i>Moina macrocopa</i>) and fish (<i>Oryzias latipes</i>). <i>Environ Toxicol Chem</i> 27: 2159-2168 et al., 2008 cited in RIVM 2010		
Perfluorooctanesulfonic acid	PFOS	Aquatic Invertebrate	Crustacean	<i>Daphnia magna</i>	21 d	Direct - SW	number of young/adult	NOEC	1.25 mg/L	69.6 RIVM 2010		J.K. Kim Y, Oh S, Ahn B, Jo H, Choi K. 2008. Toxicity of perfluorooctane sulfonic acid and perfluorooctanoic acid on freshwater macroinvertebrates (<i>Daphnia magna</i> and <i>Moina macrocopa</i>) and fish (<i>Oryzias latipes</i>). <i>Environ Toxicol Chem</i> 27: 2159-2168 et al., 2008 cited in RIVM 2010		
Perfluorooctanesulfonic acid	PFOS	Aquatic Invertebrate	Crustacean	<i>Moina macrocopa</i>	21 d	Direct - SW	number of young/adult	NOEC	1.25 mg/L	69.6 RIVM 2010		J.K. Kim Y, Oh S, Ahn B, Jo H, Choi K. 2008. Toxicity of perfluorooctane sulfonic acid and perfluorooctanoic acid on freshwater macroinvertebrates (<i>Daphnia magna</i> and <i>Moina macrocopa</i>) and fish (<i>Oryzias latipes</i>). <i>Environ Toxicol Chem</i> 27: 2159-2168 et al., 2008 cited in RIVM 2010		
Perfluorooctanesulfonic acid	PFOS	Aquatic Invertebrate	Crustacean	<i>Moina macrocopa</i>	7 d	Direct - SW	Adult Survival	NOEC	1.25 mg/L	69.6 RIVM 2010		J.K. Kim Y, Oh S, Ahn B, Jo H, Choi K. 2008. Toxicity of perfluorooctane sulfonic acid and perfluorooctanoic acid on freshwater macroinvertebrates (<i>Daphnia magna</i> and <i>Moina macrocopa</i>) and fish (<i>Oryzias latipes</i>). <i>Environ Toxicol Chem</i> 27: 2159-2168 et al., 2008 cited in RIVM 2010		
Perfluorooctanesulfonic acid	PFOS	Aquatic Invertebrate	Crustacean	<i>Daphnia magna</i>	21 d	Direct - SW	number of young/brood	EC10	1.7 mg/L	69.6 RIVM 2010		J.K. Kim Y, Oh S, Ahn B, Jo H, Choi K. 2008. Toxicity of perfluorooctane sulfonic acid and perfluorooctanoic acid on freshwater macroinvertebrates (<i>Daphnia magna</i> and <i>Moina macrocopa</i>) and fish (<i>Oryzias latipes</i>). <i>Environ Toxicol Chem</i> 27: 2159-2168 et al., 2008 cited in RIVM 2010		
potassium salt of PFOS (Where a different salt was used in the study, the result has been converted for this evaluation)	NA	Aquatic Invertebrate	Water Flea	<i>Daphnia magna</i>	NA	48 h	Direct - SW	Mortality	EC10	2.66 mg/L	NS		OECD (2002). Hazard Assessment of Perfluorooctane sulfonate (PFOS) and its Salts. Organisation for Economic Cooperation and Development, Paris, France. Accessed 11 November 2014 at http://www.oecd.org/	
Perfluorooctanesulfonic acid	PFOS	Aquatic Invertebrate	Crustacean	<i>Daphnia magna</i>	21 d	Direct - SW	number of broods/adult	EC10	3.7 mg/L	69.6 RIVM 2010		J.K. Kim Y, Oh S, Ahn B, Jo H, Choi K. 2008. Toxicity of perfluorooctane sulfonic acid and perfluorooctanoic acid on freshwater macroinvertebrates (<i>Daphnia magna</i> and <i>Moina macrocopa</i>) and fish (<i>Oryzias latipes</i>). <i>Environ Toxicol Chem</i> 27: 2159-2168 et al., 2008 cited in RIVM 2010		
Perfluorooctanesulfonic acid	PFOS	Aquatic Invertebrate	Crustacean	<i>Daphnia magna</i>	21 d	Direct - SW	Mortality	EC10	4.0 mg/L	NS		OECD (2002). Hazard Assessment of Perfluorooctane sulfonate (PFOS) and its Salts. Organisation for Economic Cooperation and Development, Paris, France. Accessed 11 November 2014 at http://www.oecd.org/		
potassium salt of PFOS (Where a different salt was used in the study, the result has been converted for this evaluation)	NA	Aquatic Invertebrate	Water Flea	<i>Daphnia magna</i>	NA	21 d	Direct - SW	Survival	NOEC	5.3 mg/L	79.4		Boudreau TM, Sibley PK, Mabury SA, Muir DCG, Solomon KR (2003a) Laboratory evaluation of the toxicity of perfluorooctane sulfonate (PFOS) on <i>Selenastrum capricornutum</i> , <i>Chlorella vulgaris</i> , <i>Lemma gibba</i> , <i>Daphnia magna</i> , and <i>Daphnia pulex</i> . <i>Arch Environ Contam Toxicol</i> 44: 307-313	
Perfluorooctanesulfonic acid	PFOS	Aquatic Invertebrate	Water Flea	<i>Daphnia magna</i>	NA	21 d	Direct - SW	Survival	NOEC	5.3 mg/L	79.4		Boudreau TM, Sibley PK, Mabury SA, Muir DCG, Solomon KR (2003a) Laboratory evaluation of the toxicity of perfluorooctane sulfonate (PFOS) on <i>Selenastrum capricornutum</i> , <i>Chlorella vulgaris</i> , <i>Lemma gibba</i> , <i>Daphnia magna</i> , and <i>Daphnia pulex</i> . <i>Arch Environ Contam Toxicol</i> 44: 307-313	
Perfluorooctanesulfonic acid	PFOS	Aquatic Invertebrate	Crustacean	<i>Daphnia magna</i>	21 d	Direct - SW	Adult Survival	EC10	5.3 mg/L	79.4		J.K. Kim Y, Oh S, Ahn B, Jo H, Choi K. 2008. Toxicity of perfluorooctane sulfonic acid and perfluorooctanoic acid on freshwater macroinvertebrates (<i>Daphnia magna</i> and <i>Moina macrocopa</i>) and fish (<i>Oryzias latipes</i>). <i>Environ Toxicol Chem</i> 27: 2159-2168 et al., 2008 cited in RIVM 2010		
potassium salt of PFOS (Where a different salt was used in the study, the result has been converted for this evaluation)	NA	Aquatic Invertebrate	Water Flea	<i>Daphnia magna</i>	NA	28 d	Direct - SW	reproduction	NOEC	7.0 mg/L	NS		OECD (2002). Hazard Assessment of Perfluorooctane sulfonate (PFOS) and its Salts. Organisation for Economic Cooperation and Development, Paris, France. Accessed 11 November 2014 at http://www.oecd.org/	
Perfluorooctanesulfonic acid	PFOS	Aquatic Invertebrate	Crustacean	<i>Daphnia magna</i>	28 d	Direct - SW	reproduction	NOEC	7.0 mg/L	NS		OECD (2002). Hazard Assessment of Perfluorooctane sulfonate (PFOS) and its Salts. Organisation for Economic Cooperation and Development, Paris, France. Accessed 11 November 2014 at http://www.oecd.org/		
Perfluorooctanesulfonate	PFOS	Aquatic Invertebrate	Daphnid	<i>Daphnia magna</i>	28 d	Direct - SW	reproduction	NOEC	7.0 mg/L	NS		UNEP (2006). Risk profile on perfluorooctane sulfonate. United Nations Environment Programme, Châtelaine, Switzerland. Accessed 18 November 2014 at http://chem.unep.org/		
Perfluorooctanesulfonic acid	PFOS	Aquatic Invertebrate	Crustacean	<i>Neoborealis denotata</i>	28 h	Direct - SW	Mortality	EC10	10 mg/L	74.3		M.H. 2009. Toxicity of perfluorooctane sulfonate and perfluorooctanoic acid to plants and aquatic invertebrates. <i>Environ Toxicol</i> 24: 100-105		
Perfluorooctanesulfonate	PFOS	Aquatic Invertebrate	Daphnid	<i>Daphnia magna</i>	48 h	Direct - SW	Mortality	EC50	11 mg/L	20		UNEP (2006). Risk profile on perfluorooctane sulfonate. United Nations Environment Programme, Châtelaine, Switzerland. Accessed 18 November 2014 at http://chem.unep.org/		
potassium salt of PFOS (Where a different salt was used in the study, the result has been converted for this evaluation)	NA	Aquatic Invertebrate	Water Flea	<i>Daphnia magna</i>	NA	21 d	Direct - SW	reproduction	NOEC	12 mg/L	NS		OECD (2002). Hazard Assessment of Perfluorooctane sulfonate (PFOS) and its Salts. Organisation for Economic Cooperation and Development, Paris, France. Accessed 11 November 2014 at http://www.oecd.org/	
potassium salt of PFOS (Where a different salt was used in the study, the result has been converted for this evaluation)	NA	Aquatic Invertebrate	Water Flea	<i>Daphnia magna</i>	NA	21 d	Direct - SW	Survival	NOEC	12 mg/L	NS		OECD (2002). Hazard Assessment of Perfluorooctane sulfonate (PFOS) and its Salts. Organisation for Economic Cooperation and Development, Paris, France. Accessed 11 November 2014 at http://www.oecd.org/	

Chemical	Abbreviation	Test Organism Group	Test Organism - Common Name	Species Name	Body Weight (kg)	Duration	Exposure Route	Effect	Endpoint	Result	Units	Data Quality Score (modified Hobbs scale) (Watley, et al. 2015)	Source	Reference
potassium salt of PFOS (Where a different salt was used in the study, the result has been converted for this evaluation)	NA	Aquatic Invertebrate	Water Flea	Daphnia magna	NA	21 d	Direct - SW	Growth	NOEC	32 mg/L	NS	1	OECD (2002). Hazard Assessment of Perfluorooctane sulfonate (PFOS) and its Salts. Organisation for Economic Cooperation and Development, Paris, France. Accessed 11 November 2014 at http://www.oecd.org/ .	
Perfluorooctanesulfonic acid	PFOS	Aquatic Invertebrate	Water Flea	Daphnia magna	NA	48 h	Direct - SW	2nd-gen Survival	NOEC	32 mg/L	NS	1	Drorlar KR, Krueger HD (2000) PFOS: A semi-static life-cycle toxicity test with the cladoceran (Daphnia magna). Wildlife International Ltd., Project No. 454A-104, EPA Docket AR226-0091.	
Perfluorooctanesulfonic acid	PFOS	Aquatic Invertebrate	Crustacean	Daphnia magna	NA	21 d	Direct - SW	Survival	NOEC	32 mg/L	NS	1	Wildlife Int. (2006a). ref 9 in OECD, 2002 cited in RIVM 2010	
Perfluorooctanesulfonic acid	PFOS	Aquatic Invertebrate	Crustacean	Daphnia magna	NA	21 d	Direct - SW	Reproduction	NOEC	32 mg/L	NS	1	Wildlife Int. (2006b). ref 9 in OECD, 2002 cited in RIVM 2010	
Perfluorooctanesulfonic acid	PFOS	Aquatic Invertebrate	Crustacean	Daphnia magna	NA	21 d	Direct - SW	Survival	NOEC	32 mg/L	NS	1	Wildlife Int. (2006c). ref 9 in OECD, 2002 cited in RIVM 2010	
Perfluorooctanesulfonic acid	PFOS	Aquatic Invertebrate	Water Flea	Daphnia pulex	NA	48 h	Direct - SW	Immobilty	NOEC	13.6 mg/L	NS	79.4	Boudreau TM, Sibley PK, Mabury SA, Muir DCG, Solomon KR (2003a) Laboratory evaluation of the toxicity of perfluorooctane sulfonate (PFOS) on Selenastrum capricornutum, Chironella vulgaris, Lemna gibba, Daphnia magna, and Daphnia pulex. Arch Environ Contam Toxicol 44:307-313.	
Perfluorooctanesulfonic acid	PFOS	Aquatic Invertebrate	Platyhelminthes	Dugesia japonica	NA	26 h	Direct - SW	Mortality	LC50	17 mg/L	NS	74.5	U M H. 2009. Toxicity of perfluorooctane sulfonic acid and perfluorooctanoic acid to freshwater macroinvertebrates (Daphnia magna and D. magna) and to the earthworm Eisenia fetida. Chemosphere 75:1068-1074.	
Perfluorooctanesulfonic acid	PFOS	Aquatic Invertebrate	Crustacean	Moina macrocarpa	NA	48 h	Direct - SW	Immobilty/mortality	LC50	18 mg/L	NS	69.6 RIVM 2010 https://www.nicnas.gov.au/chemical-information/Topics-of-interest/subjects/per-and-poly-fluorinated-chemicals		
Perfluorooctanoic acid	PFDA	Aquatic Invertebrate	Daphnid	Daphnia magna	NA	21 d	Direct - SW	Reproduction	NOEC	20 mg/L	NS	1	OECD (2008). SIDS Initial Assessment Report for Ammonium Perfluorooctanoate and Perfluorooctanoic Acid. Organisation for Economic Cooperation and Development, Paris, France. Accessed 25 February 2015 at http://webnet.oecd.org .	
Perfluorooctanesulfonic acid	PFOS	Aquatic Invertebrate	Freshwater mussel	Complanatus	NA	96 h	Direct - SW	Survival	NOEC	20 mg/L	NS	74.5	EPA Docket AR226-0091.	
Perfluorooctanesulfonic acid	PFOS	Aquatic Invertebrate	Platyhelminthes	Dugesia japonica	NA	26 h	Direct - SW	Mortality	LC50	21 mg/L	NS	74.5	Drorlar KR, Krueger HD (2000) PFOS: A 96-hr static acute toxicity test with the freshwater mussel (Unio complanatus). Wildlife International Ltd., Project No. 454A-104, EPA Docket AR226-0091.	
Perfluorooctanesulfonic acid	PFOS	Aquatic Invertebrate	Crustacean	Daphnia magna	NA	21 d	Direct - SW	Adult Survival	NOEC	25 mg/L	NS	79.4	Wildlife Int. (2006a). ref 9 in OECD, 2002 cited in RIVM 2010	
Perfluorooctanesulfonic acid	PFOS	Aquatic Invertebrate	Crustacean	Daphnia magna	NA	21 d	Direct - SW	Stage to first brood	NOEC	25 mg/L	NS	79.4	Boudreau TM, Sibley PK, Mabury SA, Muir DCG, Solomon KR (2003a) Laboratory evaluation of the toxicity of perfluorooctane sulfonate (PFOS) on Selenastrum capricornutum, Chironella vulgaris, Lemna gibba, Daphnia magna, and Daphnia pulex. Arch Environ Contam Toxicol 44:307-313.	
Perfluorooctanesulfonic acid	PFOS	Aquatic Invertebrate	Crustacean	Daphnia magna	NA	21 d	Direct - SW	Brood to first brood	NOEC	25 mg/L	NS	79.4	Boudreau TM, Sibley PK, Mabury SA, Muir DCG, Solomon KR (2003a) Laboratory evaluation of the toxicity of perfluorooctane sulfonate (PFOS) on Selenastrum capricornutum, Chironella vulgaris, Lemna gibba, Daphnia magna, and Daphnia pulex. Arch Environ Contam Toxicol 44:307-313.	
Perfluorooctanesulfonic acid	PFOS	Aquatic Invertebrate	Crustacean	Daphnia magna	NA	21 d	Direct - SW	Survival	NOEC	25 mg/L	NS	79.4	Boudreau TM, Sibley PK, Mabury SA, Muir DCG, Solomon KR (2003a) Laboratory evaluation of the toxicity of perfluorooctane sulfonate (PFOS) on Selenastrum capricornutum, Chironella vulgaris, Lemna gibba, Daphnia magna, and Daphnia pulex. Arch Environ Contam Toxicol 44:307-313.	
potassium salt of PFOS (Where a different salt was used in the study, the result has been converted for this evaluation)	NA	Aquatic Invertebrate	Water Flea	Daphnia magna	NA	48 h	Direct - SW	Mortality	LC50	27 mg/L	NS	79.4	OECD (2002). Hazard Assessment of Perfluorooctane sulfonate (PFOS) and its Salts. Organisation for Economic Cooperation and Development, Paris, France. Accessed 11 November 2014 at http://www.oecd.org/ .	
Perfluorooctanesulfonic acid	PFOS	Aquatic Invertebrate	Crustacean	Daphnia magna	NA	48 h	Direct - SW	Immobilty/mortality	LC50	27 mg/L	NS	79.4	Wildlife Int. (2006d). ref 9 in OECD, 2002 cited in RIVM 2010	
Perfluorooctanesulfonate	PFOS	Aquatic Invertebrate	Daphnid	Daphnia magna	NA	48 h	Direct - SW	Mortality	LC50	27 mg/L	NS	79.4	https://www.nicnas.gov.au/chemical-information/Topics-of-interest/subjects/per-and-poly-fluorinated-chemicals	
Perfluorooctanesulfonic acid	PFOS	Aquatic Invertebrate	Water Flea	Daphnia magna	NA	48 h	Direct - SW	Survival/Immobilty	NOEC	32 mg/L	NS	79.4	Drorlar KR, Krueger HD (2000) PFOS: A 48-hr static acute toxicity test with the cladoceran (Daphnia magna). Wildlife International Ltd., Project No. 454A-104, EPA Docket AR226-0091.	
Perfluorooctanesulfonic acid	PFOS	Aquatic Invertebrate	Water Flea	Daphnia magna	NA	48 h	Direct - SW	Survival	NOEC	33 mg/L	NS	79.4	Boudreau TM, Sibley PK, Mabury SA, Muir DCG, Solomon KR (2003a) Laboratory evaluation of the toxicity of perfluorooctane sulfonate (PFOS) on Selenastrum capricornutum, Chironella vulgaris, Lemna gibba, Daphnia magna, and Daphnia pulex. Arch Environ Contam Toxicol 44:307-313.	
Perfluorooctanesulfonic acid	PFOS	Aquatic Invertebrate	Crustacean	Daphnia magna	NA	48 h	Direct - SW	Immobilty/mortality	LC50	37.4 mg/L	NS	69.6 RIVM 2010		
Perfluorooctanesulfonic acid	PFOS	Aquatic Invertebrate	Water Flea	Daphnia magna	NA	21 d	Direct - SW	Survival	LC50/CSO/CSO	43.0 mg/L	NS	79.4	Boudreau TM, Sibley PK, Mabury SA, Muir DCG, Solomon KR (2003a) Laboratory evaluation of the toxicity of perfluorooctane sulfonate (PFOS) on Selenastrum capricornutum, Chironella vulgaris, Lemna gibba, Daphnia magna, and Daphnia pulex. Arch Environ Contam Toxicol 44:307-313.	
Perfluorooctanesulfonic acid	PFOS	Aquatic Invertebrate	Water Flea	Daphnia pulex	NA	48 h	Direct - SW	Survival	NOEC	46.9 mg/L	NS	79.4	Boudreau TM, Sibley PK, Mabury SA, Muir DCG, Solomon KR (2003a) Laboratory evaluation of the toxicity of perfluorooctane sulfonate (PFOS) on Selenastrum capricornutum, Chironella vulgaris, Lemna gibba, Daphnia magna, and Daphnia pulex. Arch Environ Contam Toxicol 44:307-313.	
potassium salt of PFOS (Where a different salt was used in the study, the result has been converted for this evaluation)	NA	Aquatic Invertebrate	Water Flea	Daphnia magna	NA	48 h	Direct - SW	Mortality	LC50	58 mg/L	NS	79.4	OECD (2002). Hazard Assessment of Perfluorooctane sulfonate (PFOS) and its Salts. Organisation for Economic Cooperation and Development, Paris, France. Accessed 11 November 2014 at http://www.oecd.org/ .	
Perfluorooctanesulfonic acid	PFOS	Aquatic Invertebrate	Water Flea	Daphnia magna	NA	48 h	Direct - SW	Survival	LC50/CSO/CSO	58 mg/L	NS	79.4	Robertson JZ (1986) Potential for environmental impact of AFA-6 surfactant. Beak Consultants Ltd. Mississauga, Ontario, Canada. EPA Docket AR226-1036043.	
Perfluorooctanesulfonic acid	PFOS	Aquatic Invertebrate	Crustacean	Daphnia magna	NA	48 h	Direct - SW	Immobilty/mortality	LC50	58 mg/L	NS	79.4	Wildlife Int. (2006e). ref 9 in OECD, 2002 cited in RIVM 2010	
potassium salt of PFOS (Where a different salt was used in the study, the result has been converted for this evaluation)	NA	Aquatic Invertebrate	Freshwater mussel	Unio complanatus	NA	96 h	Direct - SW	Mortality	LC50	59 mg/L	NS	79.4	OECD (2002). Hazard Assessment of Perfluorooctane sulfonate (PFOS) and its Salts. Organisation for Economic Cooperation and Development, Paris, France. Accessed 11 November 2014 at http://www.oecd.org/ .	
Perfluorooctanesulfonic acid	PFOS	Aquatic Invertebrate	Freshwater mussel	Complanatus	NA	26 h	Direct - SW	Survival	LC50/CSO/CSO	59 mg/L	NS	79.4	Drorlar KR, Krueger HD (2000) PFOS: A 96-hr static acute toxicity test with the freshwater mussel (Unio complanatus). Wildlife International Ltd., Project No. 454A-104, EPA Docket AR226-0091.	
Perfluorooctanesulfonic acid	PFOS	Aquatic Invertebrate	Water Flea	Daphnia magna	NA	48 h	Direct - SW	Mortality	LC50	61 mg/L	NS	79.4	Wildlife Int. (2006f). ref 9 in OECD, 2002 cited in RIVM 2010	
Perfluorooctanesulfonic acid	PFOS	Aquatic Invertebrate	Water Flea	Daphnia magna	NA	48 h	Direct - SW	Survival/Immobilty	LC50/CSO/CSO	61 mg/L	NS	79.4	Drorlar KR, Krueger HD (2000) PFOS: A 48-hr static acute toxicity test with the cladoceran (Daphnia magna). Wildlife International Ltd., Project No. 454A-104, EPA Docket AR226-0091.	
Perfluorooctanesulfonic acid	PFOS	Aquatic Invertebrate	Crustacean	Daphnia magna	NA	48 h	Direct - SW	Immobilty/mortality	LC50	61 mg/L	NS	79.4	Wildlife Int. (2006g). ref 9 in OECD, 2002 cited in RIVM 2010	
Perfluorooctanesulfonic acid	PFOS	Aquatic Invertebrate	Crustacean	Daphnia magna	NA	48 h	Direct - SW	Mortality	LC50	63 mg/L	NS	74.5	U M H. 2009. Toxicity of perfluorooctane sulfonic acid and perfluorooctanoic acid to plants and aquatic invertebrates. Environ Toxicol 24: 95-101.	
Perfluorooctanesulfonic acid	PFOS	Aquatic Invertebrate	Water Flea	Daphnia magna	NA	48 h	Direct - SW	Survival	LC50/CSO/CSO	67 mg/L	NS	79.4	Robertson JZ (1986) Potential for environmental impact of AFA-6 surfactant. Beak Consultants Ltd. Mississauga, Ontario, Canada. EPA Docket AR226-1036043.	
potassium salt of PFOS (Where a different salt was used in the study, the result has been converted for this evaluation)	NA	Aquatic Invertebrate	Water Flea	Daphnia magna	NA	48 h	Direct - SW	Mortality	LC50	67.2 mg/L	NS	79.4	Boudreau TM, Sibley PK, Mabury SA, Muir DCG, Solomon KR (2003a) Laboratory evaluation of the toxicity of perfluorooctane sulfonate (PFOS) on Selenastrum capricornutum, Chironella vulgaris, Lemna gibba, Daphnia magna, and Daphnia pulex. Arch Environ Contam Toxicol 44:307-313.	
Perfluorooctanesulfonic acid	PFOS	Aquatic Invertebrate	Water Flea	Daphnia magna	NA	48 h	Direct - SW	Immobilty	LC50/CSO/CSO	67.2 mg/L	NS	79.4	Boudreau TM, Sibley PK, Mabury SA, Muir DCG, Solomon KR (2003a) Laboratory evaluation of the toxicity of perfluorooctane sulfonate (PFOS) on Selenastrum capricornutum, Chironella vulgaris, Lemna gibba, Daphnia magna, and Daphnia pulex. Arch Environ Contam Toxicol 44:307-313.	
Perfluorooctanesulfonic acid	PFOS	Aquatic Invertebrate	Crustacean	Daphnia magna	NA	48 h	Direct - SW	Immobilty/mortality	LC50	67.2 mg/L	NS	79.4	Boudreau TM, Sibley PK, Mabury SA, Muir DCG, Solomon KR (2003a) Laboratory evaluation of the toxicity of perfluorooctane sulfonate (PFOS) on Selenastrum capricornutum, Chironella vulgaris, Lemna gibba, Daphnia magna, and Daphnia pulex. Arch Environ Contam Toxicol 44:307-313.	
Perfluorooctanesulfonic acid	PFOS	Aquatic Invertebrate	Crustacean	Daphnia magna	NA	48 h	Direct - SW	Immobilty/mortality	LC50	67.2 mg/L	NS	79.4	Boudreau TM, Sibley PK, Mabury SA, Muir DCG, Solomon KR (2003a) Laboratory evaluation of the toxicity of perfluorooctane sulfonate (PFOS) on Selenastrum capricornutum, Chironella vulgaris, Lemna gibba, Daphnia magna, and Daphnia pulex. Arch Environ Contam Toxicol 44:307-313.	
Perfluorooctanoic acid	PFDA	Aquatic Invertebrate	Midge	Chironomus tentans	NA	10 d	Direct - SW	Mortality	NOEC	100 mg/L	NS	79.4	OECD (2008). SIDS Initial Assessment Report for Ammonium Perfluorooctanoate and Perfluorooctanoic Acid. Organisation for Economic Cooperation and Development, Paris, France. Accessed 25 February 2015 at http://webnet.oecd.org .	
Perfluorooctanesulfonic acid	PFOS	Aquatic Invertebrate	Midge	Chironomus tentans	NA	20 d	Direct - SW	Survival/Emergence/Growth	NOEC	100 mg/L	NS	79.4	Ding S, Peilbergberg WDM. 2011. Physicochemical properties and aquatic toxicity of poly- and perfluorinated compounds. Crit Rev Env Sci Tech 43:298-378.	
Perfluorooctanesulfonic acid	PFOS	Aquatic Invertebrate	Water Flea	Daphnia magna	NA	48 h	Direct - SW	Survival	LC50/CSO/CSO	130 mg/L	NS	79.4	Boudreau TM, Sibley PK, Mabury SA, Muir DCG, Solomon KR (2003a) Laboratory evaluation of the toxicity of perfluorooctane sulfonate (PFOS) on Selenastrum capricornutum, Chironella vulgaris, Lemna gibba, Daphnia magna, and Daphnia pulex. Arch Environ Contam Toxicol 44:307-313.	
potassium salt of PFOS (Where a different salt was used in the study, the result has been converted for this evaluation)	NA	Aquatic Invertebrate	Water Flea	Daphnia pulex	NA	48 h	Direct - SW	Mortality	LC50	134 mg/L	NS	79.4	Boudreau TM, Sibley PK, Mabury SA, Muir DCG, Solomon KR (2003a) Laboratory evaluation of the toxicity of perfluorooctane sulfonate (PFOS) on Selenastrum capricornutum, Chironella vulgaris, Lemna gibba, Daphnia magna, and Daphnia pulex. Arch Environ Contam Toxicol 44:307-313.	
Perfluorooctanesulfonic acid	PFOS	Aquatic Invertebrate	Water Flea	Daphnia pulex	NA	48 h	Direct - SW	Immobilty	LC50/CSO/CSO	134 mg/L	NS	79.4	Boudreau TM, Sibley PK, Mabury SA, Muir DCG, Solomon KR (2003a) Laboratory evaluation of the toxicity of perfluorooctane sulfonate (PFOS) on Selenastrum capricornutum, Chironella vulgaris, Lemna gibba, Daphnia magna, and Daphnia pulex. Arch Environ Contam Toxicol 44:307-313.	
Perfluorooctanesulfonic acid	PFOS	Aquatic Invertebrate	Crustacean	Daphnia pulex	NA	48 h	Direct - SW	Immobilty/mortality	LC50	134 mg/L	NS	79.4	Boudreau TM, Sibley PK, Mabury SA, Muir DCG, Solomon KR (2003a) Laboratory evaluation of the toxicity of perfluorooctane sulfonate (PFOS) on Selenastrum capricornutum, Chironella vulgaris, Lemna gibba, Daphnia magna, and Daphnia pulex. Arch Environ Contam Toxicol 44:307-313.	
Perfluorooctanesulfonic acid	PFOS	Aquatic Invertebrate	Water Flea	Daphnia pulex	NA	48 h	Direct - SW	Survival	LC50/CSO/CSO	169 mg/L	NS	79.4	Boudreau TM, Sibley PK, Mabury SA, Muir DCG, Solomon KR (2003a) Laboratory evaluation of the toxicity of perfluorooctane sulfonate (PFOS) on Selenastrum capricornutum, Chironella vulgaris, Lemna gibba, Daphnia magna, and Daphnia pulex. Arch Environ Contam Toxicol 44:307-313.	
Perfluorooctanesulfonic acid	PFOS	Aquatic Invertebrate	Water Flea	Daphnia pulex	NA	48 h	Direct - SW	Survival	LC50	170 mg/L	NS	74.5	U M H. 2009. Toxicity of perfluorooctane sulfonic acid and perfluorooctanoic acid to plants and aquatic invertebrates. Environ Toxicol 24: 95-101.	
potassium salt of PFOS (Where a different salt was used in the study, the result has been converted for this evaluation)	NA	Aquatic Invertebrate	Water Flea	Daphnia magna	NA	48 h	Direct - SW	Mortality	LC50	223 mg/L	NS	79.4	OECD (2002). Hazard Assessment of Perfluorooctane sulfonate (PFOS) and its Salts. Organisation for Economic Cooperation and Development, Paris, France. Accessed 11 November 2014 at http://www.oecd.org/ .	
Perfluorooctanoic acid	PFDA	Aquatic Invertebrate	Daphnid	Daphnia magna	NA	48 h	Direct - SW	Mortality	LC50	360 mg/L	NS	79.4	https://www.nicnas.gov.au/chemical-information/Topics-of-interest/subjects/per-and-poly-fluorinated-chemicals	
Perfluorooctanesulfonic Acid	PFBS	Aquatic Invertebrate	Daphnid	Daphnia magna	NA	21 d	Direct - SW	Reproduction	NOEC	502 mg/L	NS	67	NICNAS. 2005 - NICNAS (2005). Existing Chemical Hazard Assessment Report: Potassium Perfluorobutane Sulfonate. National Industrial Chemical Notification and Assessment Scheme, Sydney, Australia. Accessed 21 January 2015 at http://www.nicnas.gov.au .	
Perfluorooctanesulfonic acid	PFBS	Aquatic Invertebrate	Water Flea	Daphnia magna	NA	21 d	Direct - SW	Reproduction/Length	NOEC	502 mg/L	NS	67	Wildlife International Ltd (2001 g) PFBS: A semi-static life-cycle toxicity test with the cladoceran (Daphnia magna). Wildlife International Ltd., Project No. 454A-130.	

Chemical	Abbreviation	Test Organism Group	Test Organism - Common Name	Species Name	Body Weight (µg)	Duration	Exposure Route	Effect	Endpoint	Result	Units	Data Quality Score (modified Hobbs' scale) (Bartley, et al. 2016)	Source	Reference
Perfluorooctanesulfonic acid	PFOS	Aquatic Invertebrate	Crustacean	Daphnia magna	NA	21 d	Direct - SW	NCM - SERI	NDEC	36000	µg/L	53.0	https://efpub.epa.gov/ecotox/report.cfm?Chem:36(4):938-946	Wagner N.D., A.J. Simpson, and M.J. Simpson. 2016. Metabolic responses to sublethal contaminant exposure in neonate and adult Daphnia magna. Environ. Toxicol. Chem. 36(4): 938 - 946
Perfluorooctanesulfonic acid	PFOS	Aquatic Invertebrate	Crustacean	Daphnia magna	NA	21 d	Direct - SW	NCM - METH	NDEC	36000	µg/L	53.0	https://efpub.epa.gov/ecotox/report.cfm?Chem:36(4):938-946	Wagner N.D., A.J. Simpson, and M.J. Simpson. 2016. Metabolic responses to sublethal contaminant exposure in neonate and adult Daphnia magna. Environ. Toxicol. Chem. 36(4): 938 - 946
Perfluorooctanesulfonic acid	PFOS	Aquatic Invertebrate	Crustacean	Daphnia magna	NA	21 d	Direct - SW	NCM - SERI	NDEC	36000	µg/L	53.0	https://efpub.epa.gov/ecotox/report.cfm?Chem:36(4):938-946	Wagner N.D., A.J. Simpson, and M.J. Simpson. 2016. Metabolic responses to sublethal contaminant exposure in neonate and adult Daphnia magna. Environ. Toxicol. Chem. 36(4): 938 - 946
Perfluorooctanesulfonic acid	PFOS	Aquatic Invertebrate	Crustacean	Daphnia magna	NA	21 d	Direct - SW	NCM - THRE	NDEC	36000	µg/L	53.0	https://efpub.epa.gov/ecotox/report.cfm?Chem:36(4):938-946	Wagner N.D., A.J. Simpson, and M.J. Simpson. 2016. Metabolic responses to sublethal contaminant exposure in neonate and adult Daphnia magna. Environ. Toxicol. Chem. 36(4): 938 - 946
Perfluorooctanesulfonic acid	PFOS	Aquatic Invertebrate	Crustacean	Daphnia magna	NA	21 d	Direct - SW	NCM - PRLN	NDEC	36000	µg/L	53.0	https://efpub.epa.gov/ecotox/report.cfm?Chem:36(4):938-946	Wagner N.D., A.J. Simpson, and M.J. Simpson. 2016. Metabolic responses to sublethal contaminant exposure in neonate and adult Daphnia magna. Environ. Toxicol. Chem. 36(4): 938 - 946
Perfluorooctanesulfonic acid	PFOS	Aquatic Invertebrate	Crustacean	Daphnia magna	NA	21 d	Direct - SW	NCM - GLCN	NDEC	36000	µg/L	53.0	https://efpub.epa.gov/ecotox/report.cfm?Chem:36(4):938-946	Wagner N.D., A.J. Simpson, and M.J. Simpson. 2016. Metabolic responses to sublethal contaminant exposure in neonate and adult Daphnia magna. Environ. Toxicol. Chem. 36(4): 938 - 946
Perfluorooctanesulfonic acid	PFOS	Aquatic Invertebrate	Crustacean	Daphnia magna	NA	21 d	Direct - SW	NCM - LACT	NDEC	36000	µg/L	53.0	https://efpub.epa.gov/ecotox/report.cfm?Chem:36(4):938-946	Wagner N.D., A.J. Simpson, and M.J. Simpson. 2016. Metabolic responses to sublethal contaminant exposure in neonate and adult Daphnia magna. Environ. Toxicol. Chem. 36(4): 938 - 946
Perfluorooctanesulfonic acid	PFOS	Aquatic Invertebrate	Crustacean	Daphnia magna	NA	21 d	Direct - SW	NCM - GLUC	NDEC	36000	µg/L	53.0	https://efpub.epa.gov/ecotox/report.cfm?Chem:36(4):938-946	Wagner N.D., A.J. Simpson, and M.J. Simpson. 2016. Metabolic responses to sublethal contaminant exposure in neonate and adult Daphnia magna. Environ. Toxicol. Chem. 36(4): 938 - 946
Perfluorooctanesulfonic acid	PFOS	Aquatic Invertebrate	Crustacean	Daphnia magna	NA	21 d	Direct - SW	NCM - TYRP	NDEC	36000	µg/L	53.0	https://efpub.epa.gov/ecotox/report.cfm?Chem:36(4):938-946	Wagner N.D., A.J. Simpson, and M.J. Simpson. 2016. Metabolic responses to sublethal contaminant exposure in neonate and adult Daphnia magna. Environ. Toxicol. Chem. 36(4): 938 - 946

Chemical	Abbreviation	Test Organism Group	Test Organism - Common Name	Species Name	Body Weight [kg]	Duration	Exposure Route	Effect	Endpoint	Result	Units	Data Quality Score (modified Hobbs scale) (Batley, et al 2010)	Source	Reference
Perfluorooctanesulfonic acid	PFOS	Fish	Turbot	<i>Psetta maxima</i>		144 h		Developmental and survival end	NOEC	0.01 mg/L	mg/L	71.5		Mhadhbi, L, Riol, D, Pérez, S & Beras, R 2012. Ecological risk assessment of perfluorooctanoic acid (PFOA) and perfluorooctanesulfonic acid (PFOS) in marine e using <i>Ichthyops galbana</i> , <i>Paracentrotus lividus</i> , <i>Sirella arnata</i> and <i>Psetta maxima</i> . <i>Journal of Environmental Monitoring</i> , vol. 14, no. 5, pp. 1375-1382.
Perfluorooctanesulfonic acid	PFOS	Fish	Turbot	<i>Psetta maxima</i>		144 h	Direct - SW	embryo development	LC50	0.007 mg/L	mg/L	71.5		Mhadhbi, L, Riol, D, Pérez, S & Beras, R 2012. Ecological risk assessment of perfluorooctanoic acid (PFOA) and perfluorooctanesulfonic acid (PFOS) in marine e using <i>Ichthyops galbana</i> , <i>Paracentrotus lividus</i> , <i>Sirella arnata</i> and <i>Psetta maxima</i> . <i>Journal of Environmental Monitoring</i> , vol. 14, no. 5, pp. 1375-1382.
Perfluorooctanesulfonic acid	PFOS	Fish	Fathead minnow	<i>Pimephales promelas</i>		70 d	Direct - SW	Spawning	NOEC	0.027 mg/L	mg/L	71.5		Stokely GT, Austin DW, Kati HD, Jensen KA, Linnum A, Jensen R, Vilsvaetter DA. 2005. Reproductive and developmental toxicity and bioconcentration of perfluorooctanesulfonate in a partial life cycle test with the fathead minnow (<i>Pimephales promelas</i>). <i>Environ Toxicol Chem</i> 24: 2316-2324.
Perfluorooctanesulfonic acid	PFOS	Fish	Japanese Rice Fish	<i>Oryzias latipes</i>		14 d	Direct - SW	reproduction	NOEC	0.1 mg/L	mg/L	69.6		Sik, M, Y, Oh, I, Kim H, Park H, Choi K. 2008. Toxicity of perfluorooctanoic acid and perfluorooctanoic acid on freshwater macroinvertebrates (<i>Daphnia magna</i> , <i>Chironomus dubius</i>) and fish (<i>Oryzias latipes</i>). <i>Environ Toxicol Chem</i> 27: 2159-2168.
Perfluorooctanesulfonic acid	PFOS	Fish	Fathead minnow	<i>Pimephales promelas</i>	NA	21 d	Direct - SW	early life stage	NOEC	0.2 mg/L	mg/L	NF		Grotror KR, Krueger HO (2000) PFOS: An early life-stage toxicity test with the fathead minnow (<i>Pimephales promelas</i>). Wildlife International, Ltd., Project No. EPA Docket AR226-0097.
Perfluorooctanesulfonate	PFOS	Fish	Fathead minnow	<i>Pimephales promelas</i>	NA	42 d	Direct - SW	Mortality and Growth	NOEC	0.3 mg/L	mg/L	NS		OECD (2002). Hazard Assessment of Perfluorooctane Sulfonate (PFOS) and its Salts. Organisation for Economic Cooperation and Development, Paris, France. http://www.oecd.org/ .
potassium salt of PFOS (Where a different salt was used in the study, the result has been converted for this evaluation)	NA	Fish	Fathead minnow	<i>Pimephales promelas</i>	NA	42 d	Direct - SW	Survival	NOEC	0.3 mg/L	mg/L	NS		UNEP (2006). Risk profile on perfluorooctane sulfonate. United Nations Environment Programme, Châtelaine, Switzerland. Accessed 18 November 2014 at http://chem.pops.int/ .
potassium salt of PFOS (Where a different salt was used in the study, the result has been converted for this evaluation)	NA	Fish	Fathead minnow	<i>Pimephales promelas</i>	NA	21 d	Direct - SW	Growth	NOEC	0.1 mg/L	mg/L	NS		OECD (2002). Hazard Assessment of Perfluorooctane Sulfonate (PFOS) and its Salts. ENV/IM/RJ/2002/17/FINAL.
Perfluorooctanesulfonic acid	PFOS	Fish	Fathead minnow	<i>Pimephales promelas</i>	NA	28 d	Direct - SW	Microcosm	NOEC	0.1 mg/L	mg/L	76.5		Chang GQ, Sheng PK, Martin JW, Maclean DG, Solomon KR, Mabury SA, Van der Kraak GJ. 2005. Short-term exposures of fish to perfluorooctane sulfonate: acute fatty acid coxase activity, oxidative stress, and circulating sex steroids. <i>Environ Toxicol Chem</i> 24: 1172-1181.
Perfluorooctanesulfonic acid	PFOS	Fish	Fathead minnow	<i>Pimephales promelas</i>	NA	21 d	Direct - SW	Embryonic survival	NOEC	0.1 mg/L	mg/L	NS		Wildlife Int. (2000a). ref 1 in OECD 2002 cited in BVM 2010.
Perfluorooctanesulfonic acid	PFOS	Fish	Fathead minnow	<i>Pimephales promelas</i>	NA	21 d	Direct - SW	Embryonic survival	NOEC	0.1 mg/L	mg/L	NS		Wildlife Int. (2000a). ref 1 in OECD 2002 cited in BVM 2010.
Perfluorooctanesulfonic acid	PFOS	Fish	Fathead minnow	<i>Pimephales promelas</i>	NA	21 d	Direct - SW	early life stage	LOEC	0.5 mg/L	mg/L	NF		Grotror KR, Krueger HO (2000) PFOS: An early life-stage toxicity test with the fathead minnow (<i>Pimephales promelas</i>). Wildlife International, Ltd., Project No. EPA Docket AR226-0097.
potassium salt of PFOS (Where a different salt was used in the study, the result has been converted for this evaluation)	NA	Fish	Fathead minnow	<i>Pimephales promelas</i>	NA	40 d	Direct - SW	tilt	NOEC	1 mg/L	mg/L	NS		OECD (2002). Hazard Assessment of Perfluorooctane Sulfonate (PFOS) and its Salts. ENV/IM/RJ/2002/17/FINAL.
Perfluorooctanesulfonic acid	PFOS	Fish	Zebrafish	<i>Danio rerio</i>	NA		Direct - SW	Development of Motor Neuron	LOAEL	1 mg/L	mg/L	NS		Shang L, Yi Chen Y, Xiao Zhou Y, Wan Y, Luo D, Li Gao, 2011. Abnormal development of motor neurons in perfluorooctane sulfonate exposed zebrafish. <i>Ecotoxicology</i> 20:443-452.
Perfluorooctanesulfonic acid	PFOS	Fish	Medaka	<i>Oryzias melastigma</i>		144 h	Direct - SW	embryo development	NOEC	1 mg/L	mg/L	65.7		Huang G, Fang C, Wu X, Fan J, Dong S 2011. Perfluorooctane sulfonate impairs the cardiac development of a marine medaka (<i>Oryzias melastigma</i>). <i>Aquatic Toxicology</i> , vol. 105, no. 1, pp. 71-77.
Perfluorooctanesulfonic acid	PFOS	Fish	Fathead minnow	<i>Pimephales promelas</i>		40 d	Direct - SW	ELS	NOEC	1 mg/L	mg/L	NF		OECD (2000). ref 14 in OECD 2002 cited in BVM 2010.
Perfluorooctanoic acid	PFOA	Fish	Turbot	<i>Psetta maxima</i>		144 h		Developmental and survival end	NOEC	1.5 mg/L	mg/L	71.5		Mhadhbi, L, Riol, D, Pérez, S & Beras, R 2012. Ecological risk assessment of perfluorooctanoic acid (PFOA) and perfluorooctanesulfonic acid (PFOS) in marine e using <i>Ichthyops galbana</i> , <i>Paracentrotus lividus</i> , <i>Sirella arnata</i> and <i>Psetta maxima</i> . <i>Journal of Environmental Monitoring</i> , vol. 14, no. 5, pp. 1375-1382.
Perfluorooctanesulfonic acid	PFOS	Fish	Fathead minnow	<i>Pimephales promelas</i>	NA	28 d	Direct - SW	Microcosm	LOEC	2 mg/L	mg/L	76.5		Chang GQ, Sheng PK, Martin JW, Maclean DG, Solomon KR, Mabury SA, Van der Kraak GJ. 2005. Short-term exposures of fish to perfluorooctane sulfonate: acute fatty acid coxase activity, oxidative stress, and circulating sex steroids. <i>Environ Toxicol Chem</i> 24: 1172-1181.
Perfluorooctanesulfonic acid	PFOS	Fish	Fathead minnow	<i>Pimephales promelas</i>	NA	36 h	Direct - SW	Survival	NOEC	3 mg/L	mg/L	NF		Grotror KR, Krueger HO (2000) PFOS: A 96-hr static acute toxicity test with the fathead minnow (<i>Pimephales promelas</i>). Wildlife International, Ltd., Project No. EPA Docket AR226-0081.
Perfluorooctanesulfonic acid	PFOS	Fish	Fathead minnow	<i>Pimephales promelas</i>	NA	40 d	Direct - SW	Mortality	LC50	3.1 mg/L	mg/L	76.5		Grotror KR, Krueger HO (2000) PFOS: A 96-hr static acute toxicity test with the fathead minnow (<i>Pimephales promelas</i>). Wildlife International, Ltd., Project No. EPA Docket AR226-0081.
Perfluorooctanoic acid	PFOA	Fish	Turbot	<i>Psetta maxima</i>		144 h	Direct - SW	embryo development	EC10	3.9 mg/L	mg/L	71.5		Mhadhbi, L, Riol, D, Pérez, S & Beras, R 2012. Ecological risk assessment of perfluorooctanoic acid (PFOA) and perfluorooctanesulfonic acid (PFOS) in marine e using <i>Ichthyops galbana</i> , <i>Paracentrotus lividus</i> , <i>Sirella arnata</i> and <i>Psetta maxima</i> . <i>Journal of Environmental Monitoring</i> , vol. 14, no. 5, pp. 1375-1382.
Perfluorooctanesulfonic acid	PFOS	Fish	Medaka	<i>Oryzias melastigma</i>		20 d	Direct - SW	Growth	NOEC	4 mg/L	mg/L	64.7		Fang, C, Huang, G, Ye, T, Chen, Y, Liu, L, Kang, M, Lin, Y, Shen, W & Dong, S 2013. Embryonic exposure to PFOS induces immunosuppression in the fish larvae of medaka. <i>Ecotoxicology and Environmental Safety</i> , vol. 92, pp. 104-111.
potassium salt of PFOS (Where a different salt was used in the study, the result has been converted for this evaluation)	NA	Fish	Fathead minnow	<i>Pimephales promelas</i>	NA	1 d	Direct - SW	hatch	NOEC	4.6 mg/L	mg/L	NS		OECD (2002). Hazard Assessment of Perfluorooctane Sulfonate (PFOS) and its Salts. ENV/IM/RJ/2002/17/FINAL.
Perfluorooctanesulfonate	PFOS	Fish	Fathead minnow	<i>Pimephales promelas</i>	NA	36 h	Direct - SW	Mortality	LC50	4.7 mg/L	mg/L	NS		https://www.mcas.gov.au/chemical-information/Topics-of-Interest/subjects/per-and-poly-fluorinated-chemicals
Perfluorooctanesulfonic acid	PFOS	Fish	Fathead minnow	<i>Pimephales promelas</i>	NA	36 h	Direct - SW	Mortality	LC50	4.9 mg/L	mg/L	NS		http://chem.pops.int/
Perfluorooctanesulfonate	PFOS	Fish	Fathead minnow	<i>Pimephales promelas</i>	NA	36 h	Direct - SW	Mortality	LC50	4.9 mg/L	mg/L	NS		https://www.mcas.gov.au/chemical-information/Topics-of-Interest/subjects/per-and-poly-fluorinated-chemicals
potassium salt of PFOS (Where a different salt was used in the study, the result has been converted for this evaluation)	NA	Fish	Fathead minnow	<i>Pimephales promelas</i>	NA	36 h	Direct - SW	Mortality	LC50	4.9 mg/L	mg/L	NS		UNEP (2006). Risk profile on perfluorooctane sulfonate. United Nations Environment Programme, Châtelaine, Switzerland. Accessed 18 November 2014 at http://chem.pops.int/ .
potassium salt of PFOS (Where a different salt was used in the study, the result has been converted for this evaluation)	NA	Fish	Fathead minnow	<i>Pimephales promelas</i>	NA	36 h	Direct - SW	Mortality	LC50	4.9 mg/L	mg/L	NS		OECD (2002). Hazard Assessment of Perfluorooctane Sulfonate (PFOS) and its Salts. ENV/IM/RJ/2002/17/FINAL.
Perfluorooctanesulfonic acid	PFOS	Fish	Fathead minnow	<i>Pimephales promelas</i>	NA	36 h	Direct - SW	Survival	LOEC	5.4 mg/L	mg/L	NF		Grotror KR, Krueger HO (2000) PFOS: A 96-hr static acute toxicity test with the fathead minnow (<i>Pimephales promelas</i>). Wildlife International, Ltd., Project No. EPA Docket AR226-0081.
Perfluorooctanesulfonic acid	PFOS	Fish	Rainbow trout	<i>Oncorhynchus mykiss</i>	NA	36 h	Direct - SW	Survival	NOEC	6.3 mg/L	mg/L	NF		Palmer SJ, Van Hoven RL, Krueger HO (2002a) Perfluorooctanesulfonate, potassium salt (PFOS): A 96-hr static acute toxicity test with the rainbow trout (<i>Oncorhynchus mykiss</i>). Wildlife International Ltd., Report No. 254A-145. EPA Docket AR226-1039d04.
potassium salt of PFOS (Where a different salt was used in the study, the result has been converted for this evaluation)	NA	Fish	Bluegill Sunfish	<i>Lepomis macrochirus</i>	NA	36 h	Direct - SW	Mortality	LC50	6.9 mg/L	mg/L	NS		OECD (2002). Hazard Assessment of Perfluorooctane Sulfonate (PFOS) and its Salts. ENV/IM/RJ/2002/17/FINAL.
Perfluorooctanesulfonic acid	PFOS	Fish	Fathead minnow	<i>Pimephales promelas</i>	NA	28 d	Direct - SW	Microcosm	EC50/CS0/CS0	7.2 mg/L	mg/L	76.5		Chang GQ, Sheng PK, Martin JW, Maclean DG, Solomon KR, Mabury SA, Van der Kraak GJ. 2005. Short-term exposures of fish to perfluorooctane sulfonate: acute fatty acid coxase activity, oxidative stress, and circulating sex steroids. <i>Environ Toxicol Chem</i> 24: 1172-1181.
potassium salt of PFOS (Where a different salt was used in the study, the result has been converted for this evaluation)	NA	Fish	Rainbow trout	<i>Oncorhynchus mykiss</i>	NA	36 h	Direct - SW	Mortality	LC50	7.9 mg/L	mg/L	NS		OECD (2002). Hazard Assessment of Perfluorooctane Sulfonate (PFOS) and its Salts. ENV/IM/RJ/2002/17/FINAL.
Perfluorooctanesulfonic acid	PFOS	Fish	Rainbow trout	<i>Oncorhynchus mykiss</i>	NA	36 h	Direct - SW	Survival	EC50/CS0/CS0	7.9 mg/L	mg/L	NF		Robertson JC (1986) Potential for environmental impact of AFA-6 surfactant. Beak Consultants Ltd., Mississauga, Ontario, Canada. EPA Docket AR226-1039d04.
Perfluorooctanesulfonic acid	PFOS	Fish	Rainbow trout	<i>Oncorhynchus mykiss</i>	NA	36 h	Direct - SW	Survival	LC50	7.9 mg/L	mg/L	NS		Palmer SJ, Van Hoven RL, Krueger HO (2002a) Perfluorooctanesulfonate, potassium salt (PFOS): A 96-hr static acute toxicity test with the rainbow trout (<i>Oncorhynchus mykiss</i>). Wildlife International Ltd., Report No. 254A-145. EPA Docket AR226-1039d04.
Perfluorooctanesulfonic acid	PFOS	Fish	Rainbow trout	<i>Oncorhynchus mykiss</i>	NA	36 h	Direct - SW	Survival	LC50	7.9 mg/L	mg/L	NS		Palmer SJ, Van Hoven RL, Krueger HO (2002a) Perfluorooctanesulfonate, potassium salt (PFOS): A 96-hr static acute toxicity test with the rainbow trout (<i>Oncorhynchus mykiss</i>). Wildlife International Ltd., Report No. 254A-145. EPA Docket AR226-1039d04.
Perfluorooctanesulfonic acid	PFOS	Fish	Rainbow trout	<i>Oncorhynchus mykiss</i>	NA	36 h	Direct - SW	Survival	EC50/CS0/CS0	9.1 mg/L	mg/L	NF		Palmer SJ, Van Hoven RL, Krueger HO (2002a) Perfluorooctanesulfonate, potassium salt (PFOS): A 96-hr static acute toxicity test with the rainbow trout (<i>Oncorhynchus mykiss</i>). Wildlife International Ltd., Report No. 254A-145. EPA Docket AR226-1039d04.
potassium salt of PFOS (Where a different salt was used in the study, the result has been converted for this evaluation)	NA	Fish	Fathead minnow	<i>Pimephales promelas</i>	NA	36 h	Direct - SW	Mortality	LC50	9.5 mg/L	mg/L	NS		OECD (2002). Hazard Assessment of Perfluorooctane Sulfonate (PFOS) and its Salts. ENV/IM/RJ/2002/17/FINAL.
Perfluorooctanesulfonic acid	PFOS	Fish	Fathead minnow	<i>Pimephales promelas</i>	NA	36 h	Direct - SW	Mortality	LC50	9.5 mg/L	mg/L	NS		Wildlife Int. (2000a). ref 1 in OECD 2002 cited in BVM 2010.
Perfluorooctanesulfonic acid	PFOS	Fish	Rainbow trout	<i>Oncorhynchus mykiss</i>	NA	36 h	Direct - SW	Survival	EC50/CS0/CS0	9.5 mg/L	mg/L	NF		Robertson JC (1986) Potential for environmental impact of AFA-6 surfactant. Beak Consultants Ltd., Mississauga, Ontario, Canada. EPA Docket AR226-1039d04.
Perfluorooctanesulfonic acid	PFOS	Fish	Rainbow trout	<i>Oncorhynchus mykiss</i>	NA	36 h	Direct - SW	Survival	LC50	13.7 mg/L	mg/L	NS		OECD (2002). Hazard Assessment of Perfluorooctane Sulfonate (PFOS) and its Salts. ENV/IM/RJ/2002/17/FINAL.
Perfluorooctanesulfonic acid	PFOS	Fish	Trout	<i>Oncorhynchus mykiss</i>	NA	36 h	Direct - SW	Survival	LC50	13.7 mg/L	mg/L	NF		Robertson JC (1986) Potential for environmental impact of AFA-6 surfactant. Beak Consultants Ltd., Mississauga, Ontario, Canada. EPA Docket AR226-1039d04.
Perfluorooctanesulfonic acid	PFOS	Fish	Trout	<i>Oncorhynchus mykiss</i>	NA	36 h	Direct - SW	Mortality	LC50	14.1 mg/L	mg/L	NS		OECD (2002). Hazard Assessment of Perfluorooctane Sulfonate (PFOS) and its Salts. ENV/IM/RJ/2002/17/FINAL.
potassium salt of PFOS (Where a different salt was used in the study, the result has been converted for this evaluation)	NA	Fish	Sheepshead minnow	<i>Cyprinodon variegatus</i>	NA	36 h	Direct - SW	Mortality	LC50	15 mg/L	mg/L	NS		OECD (2002). Hazard Assessment of Perfluorooctane Sulfonate (PFOS) and its Salts. ENV/IM/RJ/2002/17/FINAL.

Chemical	Abbreviation	Test Organism Group	Test Organism - Common Name	Species Name	Body Weight (kg)	Duration	Exposure Route	Effect	Endpoint	Result	Units	Data Quality Score (modified Hobb's scale) (Batley, et al, 2014)	Source	Reference
Perfluorooctanesulfonic acid	PFOA	Marine plant		Skeletonema costatum		96 h		Growth endpoints	EC50		3.2 mg/kg	NS		Environment Agency 2004 cited in Williamtown ERA
Perfluorooctanoic acid	PFOA	Marine plant		Isochrysis galbana		72 h		Growth inhibition	EC50		163.6 mg/kg	73.5		Mhadhbi et al. 2012 cited in Williamtown ERA
Perfluorooctanesulfonic acid	PFOA	Marine plant		Skeletonema costatum		96 h		Growth endpoints	EC50		3.2 mg/L	NS		Environment Agency 2004 cited in Oakey ERA
Perfluorooctanoic acid	PFOA	Marine plant		Isochrysis galbana		72 h		Growth inhibition	EC50		163.6 mg/L	73.5		Mhadhbi et al. 2012 cited in Oakey ERA

Chemical	Abbreviation	Test Organism Group	Test Organism - Common Name	Species Name	Body Weight (kg)	Duration	Exposure Route	Effect	Endpoint	Result	Units	Data Quality Score (modified Hobbs's scale) (Batley, et al. 2014)	Source	Reference
Perfluorooctanesulfonic acid	PFOS	Marine Aquatic Invertebrate	Mussel	<i>M. galloprovincialis</i>		96 h	Direct - SW	Developmental endpoints	NOEC	0.00001 mg/L		79.4	Fabrizi R. M., Montagna, T., Balbi, E., Raffo, F., Palumbo, and L. Canon. 2014. Adaptation of the Bivalve Embryotoxicity Assay for the High Throughput Screen Contaminants in <i>Mytilus galloprovincialis</i> . Mar. Environ. Res. 99:1 - 8.	
Perfluorooctanoic acid	PFDA	Marine Aquatic Invertebrate	Mussel	<i>M. galloprovincialis</i>		96 h	Direct - SW	Developmental endpoints	NOEC	0.00001 mg/L		79.4	Fabrizi R. M., Montagna, T., Balbi, E., Raffo, F., Palumbo, and L. Canon. 2014. Adaptation of the Bivalve Embryotoxicity Assay for the High Throughput Screen Contaminants in <i>Mytilus galloprovincialis</i> . Mar. Environ. Res. 99:1 - 8.	
Perfluorooctanesulfonic acid	PFOS	Marine Aquatic Invertebrate	Mussel	<i>M. galloprovincialis</i>		96 h	Direct - SW	Developmental endpoints	NOEC	0.00001 mg/L		79.4	Fabrizi R. M., Montagna, T., Balbi, E., Raffo, F., Palumbo, and L. Canon. 2014. Adaptation of the Bivalve Embryotoxicity Assay for the High Throughput Screen Contaminants in <i>Mytilus galloprovincialis</i> . Mar. Environ. Res. 99:1 - 8.	
Perfluorooctanoic acid	PFDA	Marine Aquatic Invertebrate	Mussel	<i>M. galloprovincialis</i>		96 h	Direct - SW	Developmental endpoints	NOEC	0.00001 mg/L		79.4	Fabrizi R. M., Montagna, T., Balbi, E., Raffo, F., Palumbo, and L. Canon. 2014. Adaptation of the Bivalve Embryotoxicity Assay for the High Throughput Screen Contaminants in <i>Mytilus galloprovincialis</i> . Mar. Environ. Res. 99:1 - 8.	
Perfluorooctanesulfonic acid	PFOS	Marine Aquatic Invertebrate	Zooplankton	<i>Tigriopus japonicus</i>		320 d	Direct - SW	Reproduction	NOEC	0.1 mg/L		69.7	Han, J., Won, H., Lee, M.C., Seo, J.S., Lee, S.J. & Lee, J.S. 2015. Developmental retardation, reduced fecundity and modulated expression of the defense gene in copepod <i>Tigriopus japonicus</i> exposed to BDE-47 and PFOS. Aquatic Toxicology, vol. 105, pp. 138-143.	
Perfluorooctanesulfonic acid	PFOS	Marine Aquatic Invertebrate	Sea Urchin	<i>Strongylocentrotus oregonus</i>		21 d	Direct - SW	Germination	NOEC	0.1 mg/L	NF		Ding G., Peijnenburg WJGM. 2013. Physicochemical properties and aquatic toxicity of poly- and perfluorinated compounds. Crit Rev Env Sci Tech 43:1599-1620.	
Perfluorooctanesulfonic acid	PFOS	Marine Aquatic Invertebrate	Myxid shrimp	<i>Myxidopsis bahia</i>	NA	15 d	Direct - SW	Growth/Reproduction	NOEC	0.24 mg/L	NF		Drottar KR, Krueger HD (2006) PFOS: A 96-hr static acute toxicity test with the saltwater mysid (<i>Myxidopsis bahia</i>). Wildlife International, Ltd., Project No. EPA Docket AR226-0101.	
Perfluorooctanesulfonate	PFOS	Marine Aquatic Invertebrate	Myxid	<i>Myxidopsis bahia</i>		15 d	Direct - SW	Reproduction	NOEC	0.25 mg/L	NS		OECD (2002). Hazard Assessment of Perfluorooctane sulfonate (PFOS) and its Salts. Organisation for Economic Cooperation and Development, Paris, France. https://www.nicnas.gov.au/chemical-information/topics-of-interest/subjects/per-and-poly-fluorinated-chemicals	
potassium salt of PFOS (Where a different salt was used in the study, the result has been converted for this evaluation)	NA	Marine Aquatic Invertebrate	Myxid shrimp	<i>Myxidopsis bahia</i>	NA	15 d	Direct - SW	Reproduction	NOEC	0.25 mg/L	NS		OECD (2002). Hazard Assessment of Perfluorooctane sulfonate (PFOS) and its Salts. Organisation for Economic Cooperation and Development, Paris, France. https://www.nicnas.gov.au/chemical-information/topics-of-interest/subjects/per-and-poly-fluorinated-chemicals	
potassium salt of PFOS (Where a different salt was used in the study, the result has been converted for this evaluation)	NA	Marine Aquatic Invertebrate	Myxid shrimp	<i>Myxidopsis bahia</i>	NA	15 d	Direct - SW	Growth	NOEC	0.25 mg/L	NS		OECD (2002). Hazard Assessment of Perfluorooctane sulfonate (PFOS) and its Salts. Organisation for Economic Cooperation and Development, Paris, France. https://www.nicnas.gov.au/chemical-information/topics-of-interest/subjects/per-and-poly-fluorinated-chemicals	
Perfluorooctanesulfonic acid	PFOS	Marine Aquatic Invertebrate	Myxid	<i>Myxidopsis bahia</i>		15 d	Direct - SW	Reproduction	NOEC	0.25 mg/L	NS		OECD (2002). Hazard Assessment of Perfluorooctane sulfonate (PFOS) and its Salts. Organisation for Economic Cooperation and Development, Paris, France. https://www.nicnas.gov.au/chemical-information/topics-of-interest/subjects/per-and-poly-fluorinated-chemicals	
Perfluorooctanesulfonic acid	PFOS	Marine Aquatic Invertebrate	Myxid	<i>Myxidopsis bahia</i>		15 d	Direct - SW	Reproduction	NOEC	0.25 mg/L	NS		OECD (2002). Hazard Assessment of Perfluorooctane sulfonate (PFOS) and its Salts. Organisation for Economic Cooperation and Development, Paris, France. https://www.nicnas.gov.au/chemical-information/topics-of-interest/subjects/per-and-poly-fluorinated-chemicals	
Perfluorooctanesulfonic acid	PFOS	Marine Aquatic Invertebrate	Myxid	<i>Myxidopsis bahia</i>		15 d	Direct - SW	Reproduction	NOEC	0.25 mg/L	NS		OECD (2002). Hazard Assessment of Perfluorooctane sulfonate (PFOS) and its Salts. Organisation for Economic Cooperation and Development, Paris, France. https://www.nicnas.gov.au/chemical-information/topics-of-interest/subjects/per-and-poly-fluorinated-chemicals	
Perfluorooctanesulfonic acid	PFOS	Marine Aquatic Invertebrate	Zooplankton	<i>Tigriopus japonicus</i>		320 d	Direct - SW	Growth	NOEC	0.1 mg/L		69.7	Han, J., Won, H., Lee, M.C., Seo, J.S., Lee, S.J. & Lee, J.S. 2015. Developmental retardation, reduced fecundity and modulated expression of the defense gene in copepod <i>Tigriopus japonicus</i> exposed to BDE-47 and PFOS. Aquatic Toxicology, vol. 105, pp. 138-143.	
Perfluorooctanesulfonic acid	PFOS	Marine Aquatic Invertebrate	Myxid shrimp	<i>Myxidopsis bahia</i>	NA	16 h	Direct - SW	2nd Gen Survival	NOEC	0.53 mg/L	NF		Drottar KR, Krueger HD (2006) PFOS: A 96-hr static acute toxicity test with the saltwater mysid (<i>Myxidopsis bahia</i>). Wildlife International, Ltd., Project No. EPA Docket AR226-0101.	
potassium salt of PFOS (Where a different salt was used in the study, the result has been converted for this evaluation)	NA	Marine Aquatic Invertebrate	Myxid shrimp	<i>Myxidopsis bahia</i>	NA	16 h	Direct - SW	Survival	NOEC	0.53 mg/L	NS		OECD (2002). Hazard Assessment of Perfluorooctane sulfonate (PFOS) and its Salts. Organisation for Economic Cooperation and Development, Paris, France. https://www.nicnas.gov.au/chemical-information/topics-of-interest/subjects/per-and-poly-fluorinated-chemicals	
Perfluorooctanesulfonic acid	PFOS	Marine Aquatic Invertebrate	Myxid shrimp	<i>Myxidopsis bahia</i>	NA	16 h	Direct - SW	Survival	NOEC	1.1 mg/L	NF		Drottar KR, Krueger HD (2006) PFOS: A 96-hr static acute toxicity test with the saltwater mysid (<i>Myxidopsis bahia</i>). Wildlife International, Ltd., Project No. EPA Docket AR226-0089.	
Perfluorooctanesulfonic acid	PFOS	Marine Aquatic Invertebrate	Eastern oyster	<i>Crassostrea virginica</i>	NA	96 h	Direct - SW	Shell Growth	NOEC	1.6 mg/L	NF		OECD (2002). Hazard Assessment of Perfluorooctane sulfonate (PFOS) and its Salts. Organisation for Economic Cooperation and Development, Paris, France. https://www.nicnas.gov.au/chemical-information/topics-of-interest/subjects/per-and-poly-fluorinated-chemicals	
Perfluorooctanesulfonic acid	PFOS	Marine Aquatic Invertebrate	Oyster	<i>Crassostrea virginica</i>		96 h	Direct - SW	Shell deposition	NOEC	1.6 mg/L	NS		OECD (2002). Hazard Assessment of Perfluorooctane sulfonate (PFOS) and its Salts. Organisation for Economic Cooperation and Development, Paris, France. https://www.nicnas.gov.au/chemical-information/topics-of-interest/subjects/per-and-poly-fluorinated-chemicals	
Perfluorooctanesulfonic acid	PFOS	Marine Aquatic Invertebrate	Sea Urchin	<i>Paracentrotus lividus</i>		148 h	Direct - SW	Growth	EC10	2.6 mg/L		73.5	Mhadhbi, L., Rai, D., Pérez, S. & Béjar, R. 2012. Ecological risk assessment of perfluorooctanoic acid (PFDA) and perfluorooctanesulfonic acid (PFOS) in marine bivalves <i>Mytilus galloprovincialis</i> , <i>Paracentrotus lividus</i> , <i>Squilla armata</i> and <i>Perna perna</i> . Journal of Environmental Monitoring, vol. 14, no. 5, pp. 1375-1382.	
Perfluorooctanesulfonic acid	PFOS	Marine Aquatic Invertebrate	Myxid	<i>Squilla armata</i>		148 h	Direct - SW	Survival	EC10	3.2 mg/L		73.5	Mhadhbi, L., Rai, D., Pérez, S. & Béjar, R. 2012. Ecological risk assessment of perfluorooctanoic acid (PFDA) and perfluorooctanesulfonic acid (PFOS) in marine bivalves <i>Mytilus galloprovincialis</i> , <i>Paracentrotus lividus</i> , <i>Squilla armata</i> and <i>Perna perna</i> . Journal of Environmental Monitoring, vol. 14, no. 5, pp. 1375-1382.	
Perfluorooctanesulfonate	PFOS	Marine Aquatic Invertebrate	Myxid	<i>Myxidopsis bahia</i>		16 h	Direct - SW	Mortality	LC50	3.6 mg/L	NS		OECD (2002). Hazard Assessment of Perfluorooctane sulfonate (PFOS) and its Salts. Organisation for Economic Cooperation and Development, Paris, France. https://www.nicnas.gov.au/chemical-information/topics-of-interest/subjects/per-and-poly-fluorinated-chemicals	
potassium salt of PFOS (Where a different salt was used in the study, the result has been converted for this evaluation)	NA	Marine Aquatic Invertebrate	Myxid shrimp	<i>Myxidopsis bahia</i>	NA	16 h	Direct - SW	Mortality	LC50	3.6 mg/L	NS		OECD (2002). Hazard Assessment of Perfluorooctane sulfonate (PFOS) and its Salts. Organisation for Economic Cooperation and Development, Paris, France. https://www.nicnas.gov.au/chemical-information/topics-of-interest/subjects/per-and-poly-fluorinated-chemicals	
Perfluorooctanesulfonic acid	PFOS	Marine Aquatic Invertebrate	Myxid shrimp	<i>Myxidopsis bahia</i>	NA	16 h	Direct - SW	Survival	EC50/LC50/EC50	3.6 mg/L	NF		OECD (2002). Hazard Assessment of Perfluorooctane sulfonate (PFOS) and its Salts. Organisation for Economic Cooperation and Development, Paris, France. https://www.nicnas.gov.au/chemical-information/topics-of-interest/subjects/per-and-poly-fluorinated-chemicals	
Perfluorooctanesulfonic acid	PFOS	Marine Aquatic Invertebrate	Myxid	<i>Myxidopsis bahia</i>		16 h	Direct - SW	Survival	LC50	3.6 mg/L	NS		OECD (2002). Hazard Assessment of Perfluorooctane sulfonate (PFOS) and its Salts. Organisation for Economic Cooperation and Development, Paris, France. https://www.nicnas.gov.au/chemical-information/topics-of-interest/subjects/per-and-poly-fluorinated-chemicals	
Perfluorooctanesulfonic acid	PFOS	Marine Aquatic Invertebrate	Myxid	<i>Myxidopsis bahia</i>		16 h	Direct - SW	Mortality	LC50	3.6 mg/L	NS		OECD (2002). Hazard Assessment of Perfluorooctane sulfonate (PFOS) and its Salts. Organisation for Economic Cooperation and Development, Paris, France. https://www.nicnas.gov.au/chemical-information/topics-of-interest/subjects/per-and-poly-fluorinated-chemicals	
Perfluorooctanoic acid	PFDA	Marine Aquatic Invertebrate	Myxid	<i>Squilla armata</i>		148 h	Direct - SW	Survival	EC10	7.6 mg/L		73.5	Mhadhbi, L., Rai, D., Pérez, S. & Béjar, R. 2012. Ecological risk assessment of perfluorooctanoic acid (PFDA) and perfluorooctanesulfonic acid (PFOS) in marine bivalves <i>Mytilus galloprovincialis</i> , <i>Paracentrotus lividus</i> , <i>Squilla armata</i> and <i>Perna perna</i> . Journal of Environmental Monitoring, vol. 14, no. 5, pp. 1375-1382.	
potassium salt of PFOS (Where a different salt was used in the study, the result has been converted for this evaluation)	NA	Marine Aquatic Invertebrate	Shrimp	<i>Antenna</i> sp.	NA	148 h	Direct - SW	Mortality	LC50	8.9 mg/L	NS		OECD (2002). Hazard Assessment of Perfluorooctane sulfonate (PFOS) and its Salts. Organisation for Economic Cooperation and Development, Paris, France. https://www.nicnas.gov.au/chemical-information/topics-of-interest/subjects/per-and-poly-fluorinated-chemicals	
Perfluorooctanesulfonic acid	PFOS	Marine Aquatic Invertebrate	Shrimp	<i>Antenna salina</i>	NA	148 h	Direct - SW	Survival	EC50/LC50/EC50	8.9 mg/L	NF		Robertson JC (1986) Potential for environmental impact of AFA-6 surfactant. Beak Consultants Ltd, Mississauga, Ontario, Canada. EPA Docket AR226-103 Beak (1986), ref 32 in OECD, 2002 cited in RW 2010.	
Perfluorooctanesulfonic acid	PFOS	Marine Aquatic Invertebrate	Crustacean	<i>Antenna</i>		148 h	Direct - SW	Survival	LC50	9.4 mg/L	NS		OECD (2002). Hazard Assessment of Perfluorooctane sulfonate (PFOS) and its Salts. Organisation for Economic Cooperation and Development, Paris, France. https://www.nicnas.gov.au/chemical-information/topics-of-interest/subjects/per-and-poly-fluorinated-chemicals	
Perfluorooctanesulfonic acid	PFOS	Marine Aquatic Invertebrate	Shrimp	<i>Antenna salina</i>	NA	148 h	Direct - SW	Survival	EC50/LC50/EC50	9.4 mg/L	NF		Robertson JC (1986) Potential for environmental impact of AFA-6 surfactant. Beak Consultants Ltd, Mississauga, Ontario, Canada. EPA Docket AR226-103 Beak (1986), ref 32 in OECD, 2002 cited in RW 2010.	
Perfluorooctanesulfonic acid	PFOS	Marine Aquatic Invertebrate	Shrimp	<i>Antenna salina</i>	NA	148 h	Direct - SW	Survival	EC50/LC50/EC50	9.4 mg/L	NF		Robertson JC (1986) Potential for environmental impact of AFA-6 surfactant. Beak Consultants Ltd, Mississauga, Ontario, Canada. EPA Docket AR226-103 Beak (1986), ref 32 in OECD, 2002 cited in RW 2010.	
Perfluorooctanoic acid	PFDA	Marine Aquatic Invertebrate	Sea Urchin	<i>Paracentrotus lividus</i>		148 h	Direct - SW	Growth	EC10	30.7 mg/L		73.5	Mhadhbi, L., Rai, D., Pérez, S. & Béjar, R. 2012. Ecological risk assessment of perfluorooctanoic acid (PFDA) and perfluorooctanesulfonic acid (PFOS) in marine bivalves <i>Mytilus galloprovincialis</i> , <i>Paracentrotus lividus</i> , <i>Squilla armata</i> and <i>Perna perna</i> . Journal of Environmental Monitoring, vol. 14, no. 5, pp. 1375-1382.	
Perfluorooctanesulfonic acid	PFOS	Marine Aquatic Invertebrate	Myxid shrimp	<i>Myxidopsis bahia</i>	NA	160 h	Direct - SW		NOEC	127 mg/L	NF		Wildlife International Ltd (2001) PFOS: A 96-hour toxicity test with the saltwater mysid (<i>Myxidopsis bahia</i>). Wildlife International Ltd., Project No. 454A Wildlife Int. (2001a), ref 32 in OECD, 2002 cited in RW 2010.	
Perfluorooctanesulfonic acid	PFOS	Marine Aquatic Invertebrate	Myxid shrimp	<i>Myxidopsis bahia</i>	NA	160 h	Direct - SW		LOEC	269 mg/L	NF		Wildlife International Ltd (2001) PFOS: A 96-hour toxicity test with the saltwater mysid (<i>Myxidopsis bahia</i>). Wildlife International Ltd., Project No. 454A Wildlife Int. (2001a), ref 32 in OECD, 2002 cited in RW 2010.	
Perfluorooctanesulfonic Acid	PFOS	Marine Aquatic Invertebrate	Myxid	<i>Myxidopsis bahia</i>	NA	160 h	Direct - SW	Mortality	LC50	375 mg/L	67.6		NICNAS, 2005 - NICNAS (2005). Existing Chemical Hazard Assessment Report: Potassium Perfluorooctane Sulfonate. National Industrial Chemical Assessment Scheme, Sydney, Australia. https://www.nicnas.gov.au/chemical-information/topics-of-interest/subjects/per-and-poly-fluorinated-chemicals	
Perfluorooctanesulfonic acid	PFOS	Marine Aquatic Invertebrate	Myxid shrimp	<i>Myxidopsis bahia</i>	NA	160 h	Direct - SW		LC50	375 mg/L	NF		Wildlife International Ltd (2001) PFOS: A 96-hour toxicity test with the saltwater mysid (<i>Myxidopsis bahia</i>). Wildlife International Ltd., Project No. 454A Wildlife Int. (2001a), ref 32 in OECD, 2002 cited in RW 2010.	
Perfluorooctanoic acid	PFDA	Marine Aquatic Invertebrate	Mussel	<i>Ferna viridis</i>		1 d	Direct - SW	Germinotoxicity	LC50	596 mg/L		64.7	Xiu, C., Cheng, W.W.C., Gu, R.Y.H. & Nguyen, V.T. 2014. Genotoxicity of perfluorinated chemicals (PFAS) to the green mussel (<i>Ferna viridis</i>) species of the total PFAS. pp. 137-133.	
Perfluorooctanesulfonic acid	PFOS	Marine Aquatic Invertebrate	Mollusc	<i>Crassostrea virginica</i>		96 h	Direct - SW	Shell growth	EC50	3 mg/L	NF		Wildlife Int. (2001), ref 4 in OECD, 2002 cited in RW 2010.	
potassium salt of PFOS (Where a different salt was used in the study, the result has been converted for this evaluation)	NA	Marine Aquatic Invertebrate	Eastern oyster	<i>Crassostrea virginica</i>	NA	96 h	Direct - SW	Mortality	EC50	>3.0 mg/L	NS		OECD (2002). Hazard Assessment of Perfluorooctane sulfonate (PFOS) and its Salts. Organisation for Economic Cooperation and Development, Paris, France. https://www.nicnas.gov.au/chemical-information/topics-of-interest/subjects/per-and-poly-fluorinated-chemicals	
Perfluorooctanesulfonic acid	PFOS	Marine Aquatic Invertebrate	Eastern oyster	<i>Crassostrea virginica</i>	NA	166 h	Direct - SW	Shell Growth	EC50/LC50/EC50	>3.0 mg/L	NF		Drottar KR, Krueger HD (2006) PFOS: A 96-hr shell deposition test with the eastern oyster (<i>Crassostrea virginica</i>). Wildlife International, Ltd., Project No. EPA Docket AR226-0089.	

Chemical	Abbreviation	Test Organism Group	Test Organism - Common Name	Species Name	Body Weight (kg)	Duration	Exposure Route	Effect	Endpoint	Result	Units	Data Quality Score (modified Hobbs's Scale) (Batley, et al, 2014)	Source	Reference
Perfluorooctanoic acid	PFOA	Terrestrial Plant	Wheat	Triticum aestivum		30 d	Soil	Growth	NOEC		1 mg/kg	81.4		Zhao, S, Fang, S, Zhu, L, Liu, L & Zhang, Y 2014, 'Mutual impacts of wheat (Triticum aestivum L.) and earthworms (Eisenia fetida) on the bioavailability of perfluoroalkyl substances (PFAS) in soil', Environmental Pollution, vol. 184, pp. 495-501.
Perfluorooctanesulfonic acid	PFOS	Terrestrial Plant	Lettuce	Lactuca sativa		205 d	Soil	Shoot height and weight	NOEC		4.6 mg/kg	NS		Environment Agency 2004 cited in Williamtown ERA
Perfluorooctanesulfonic acid	PFOS	Terrestrial Plant	Lettuce	Lactuca sativa			Soil	Growth endpoints	NOEC		4.6 mg/kg	NS		Environment Agency 2004 cited in Oakey ERA
Perfluorooctanoic acid	PFOA	Terrestrial Plant	Wheat, Oats, Potatoes, Ryegrass				Soil	Necrosis, yellowing and diminished growth	LOEC		10 mg/kg	NS	https://www.nicnas.gov.au/chemical-information/Topics-of-interest/subjects/per-and-poly-fluorinated-chemicals	Environment Canada (2012a). Perfluorooctanoic Acid, Its Salts, and its Precursors. Environment Canada, Gatineau, Canada. Accessed at http://www.ec.gc.ca .
Perfluorooctanesulfonic acid	PFOS	Terrestrial Plant	Lettuce	Lactuca sativa		2 d	Soil	Growth	EC10		24 mg/kg	74.5		Li M-H. 2009. Toxicity of perfluorooctane sulfonate and perfluorooctanoic acid to plants and aquatic invertebrates. Environ Toxicol 24: 95-101.
Perfluorooctanesulfonic acid	PFOS	Terrestrial Plant	Chinese cabbage	Brassica rapa pekinensis		15 d	Soil	Growth	NOEC		34 mg/kg	62.7		Zhang, D-Y, Shen, X-Y & Xu, X-E 2011 'The effects of perfluorooctane sulfonate (PFOS) on Chinese cabbage (Brassica rapa pekinensis) germination and development', Procedia Engineering, vol. 18, pp. 206-211.
Perfluorooctanesulfonic acid	PFOS	Terrestrial Plant	Pakchoi	Brassica rapa chinensis		2 d	Soil	Growth	EC10		71 mg/kg	74.5		Li M-H. 2009. Toxicity of perfluorooctane sulfonate and perfluorooctanoic acid to plants and aquatic invertebrates. Environ Toxicol 24: 95-101.
Perfluorooctanesulfonic acid	PFOS	Terrestrial Plant	Pakchoi	Brassica rapa chinensis		7 d	Soil	Growth	EC10		72 mg/kg	83.3		Zhao, H, Chen, C, Zhang, X, Chen, J & Quan, X 2011, 'Phytotoxicity of PFOS and PFOA to Brassica chinensis in different Chinese soils', Ecotoxicology and Environmental Safety, vol. 74, pp. 1343-1347.
Perfluorooctanoic acid	PFOA	Terrestrial Plant	Pakchoi	Brassica rapa chinensis		7 d	Soil	Growth	EC10		103 mg/kg	83.3		Zhao, H, Chen, C, Zhang, X, Chen, J & Quan, X 2011, 'Phytotoxicity of PFOS and PFOA to Brassica chinensis in different Chinese soils', Ecotoxicology and Environmental Safety, vol. 74, pp. 1343-1347.
Perfluorooctanoic acid	PFOA	Terrestrial Plant	Pakchoi	Brassica rapa chinensis		5 d	Soil	Growth	EC10		155 mg/kg	74.5		Li M-H. 2009. Toxicity of perfluorooctane sulfonate and perfluorooctanoic acid to plants and aquatic invertebrates. Environ Toxicol 24: 95-101.
Perfluorooctanoic acid	PFOA	Terrestrial Plant	Lettuce	Lactuca sativa		2 d	Soil	Growth	EC50		170 mg/kg	74.5		Li M-H. 2009. Toxicity of perfluorooctane sulfonate and perfluorooctanoic acid to plants and aquatic invertebrates. Environ Toxicol 24: 95-101.
Perfluorooctanoic acid	PFOA	Terrestrial Plant	Pak Choi	Brassica rapa chinensis			Soil	Seed germination	EC50		579 mg/l	NS	https://www.nicnas.gov.au/chemical-information/Topics-of-interest/subjects/per-and-poly-fluorinated-chemicals	Environment Canada (2012a). Perfluorooctanoic Acid, Its Salts, and its Precursors. Environment Canada, Gatineau, Canada. Accessed at http://www.ec.gc.ca .
Perfluorooctanoic acid	PFOA	Terrestrial Plant	Cucumber	Cucumis sativus		5 d	Soil	Growth	NOEC		812 mg/kg	74.5		Li M-H. 2009. Toxicity of perfluorooctane sulfonate and perfluorooctanoic acid to plants and aquatic invertebrates. Environ Toxicol 24: 95-101.
Perfluorooctanoic acid	PFOA	Terrestrial Plant	Lettuce	Lactuca sativa			Soil	Root Growth	LOEC		1000 mg/l	NS	https://www.nicnas.gov.au/chemical-information/Topics-of-interest/subjects/per-and-poly-fluorinated-chemicals	Environment Canada (2012a). Perfluorooctanoic Acid, Its Salts, and its Precursors. Environment Canada, Gatineau, Canada. Accessed at http://www.ec.gc.ca .
Perfluorooctanoic acid	PFOA	Terrestrial Plant	Pak Choi	Brassica rapa chinensis			Soil	Root Growth	LOEC		1000 mg/l	NS	https://www.nicnas.gov.au/chemical-information/Topics-of-interest/subjects/per-and-poly-fluorinated-chemicals	Environment Canada (2012a). Perfluorooctanoic Acid, Its Salts, and its Precursors. Environment Canada, Gatineau, Canada. Accessed at http://www.ec.gc.ca .
Perfluorooctanoic acid	PFOA	Terrestrial Plant	Lettuce	Lactuca sativa			Soil	Seed germination	EC50		1724 mg/l	NS	https://www.nicnas.gov.au/chemical-information/Topics-of-interest/subjects/per-and-poly-fluorinated-chemicals	Environment Canada (2012a). Perfluorooctanoic Acid, Its Salts, and its Precursors. Environment Canada, Gatineau, Canada. Accessed at http://www.ec.gc.ca .
Perfluorooctanesulfonic acid	PFOS	Terrestrial Plant	Cucumber	Cucumis sativus		5 d	Soil	Growth	NOEC		>200 mg/kg	74.5		Li M-H. 2009. Toxicity of perfluorooctane sulfonate and perfluorooctanoic acid to plants and aquatic invertebrates. Environ Toxicol 24: 95-101.

Chemical	Abbreviation	Test Organism Group	Test Organism - Common Name	Species Name	Body Weight (kg)	Duration	Exposure Route	Effect	Endpoint	Result	Units	Data Quality Score (modified Hobb's scale) (Batley, et al, 2014)	Source	Reference
Perfluorooctanesulfonic acid	PFOS	Terrestrial Invertebrate	Earthworm			14 d	Soil	Reproductive endpoints	NOEC		10 mg/kg	NF	Williamtown ERA	Norwegian Pollution Control Authority 2008
Perfluorooctanesulfonic acid	PFOS	Terrestrial Invertebrate	Earthworm				Soil	Reproductive endpoints	NOEC		10 mg/kg	NF	Oskey ERA	Norwegian Pollution Control Authority 2008
Perfluorooctanoic acid	PFDA	Terrestrial Invertebrate	Earthworm	<i>Eisenia fetida</i>		42 d	Soil	Growth	NOEC		10 mg/kg	81.3		He, W, Megharaj, M & Naidu, R 2016. 'Toxicity of perfluorooctanoic acid toward earthworm and enzymatic activities in soil', <i>Environmental Monitoring and Assessment</i> , vol. 88, p.424.
Perfluorooctanoic acid	PFDA	Terrestrial Invertebrate	Earthworm			14 d	Soil	Reproductive endpoints	NOEC		10 mg/kg	NF	Williamtown ERA	Norwegian Pollution Control Authority 2008
Perfluorooctanoic acid	PFDA	Terrestrial Invertebrate	Earthworm				Soil	Reproductive endpoints, burrowing behaviour, body weight and clinical signs of toxicity	NOEC		10 mg/kg	NF	Oskey ERA	Norwegian Pollution Control Authority 2008
Perfluorooctanesulfonic acid	PFOS	Terrestrial Invertebrate	Earthworm	NA	NA	14 d	Soil	Toxicity	NOEC		77 mg/kg dwt	NF	3M (2003) Environmental and Health Assessment of Perfluorooctane Sulfonic Acid and its Salts. Prepared by 3M Company, with J Moore (Hollyhouse Inc.), J Rodericks and D Turnbull (Environ Corp.) and W Warren-Hicks and Colleagues (The Cadmus Group, Inc.), August 2003.	
Perfluorooctanesulfonic acid	PFOS	Terrestrial Invertebrate	Earthworm	<i>Eisenia fetida</i>		42 d	Soil	Growth	NOEC		80 mg/kg	72.5		Xu, D, Li, C, Wen, Y & Liu, W 2013. 'Antioxidant defence system responses and DNA damage of earthworms exposed to Perfluorooctane sulfonate (PFOS)', <i>Environmental Pollution</i> , vol. 174, pp. 121-127.
Perfluorooctanoic acid	PFDA	Terrestrial Invertebrate	Soil bacteria			28 day	Soil	Enzyme activity	EC50		80 mg/kg	83.3		He, W, Megharaj, M & Naidu, R 2016. 'Toxicity of perfluorooctanoic acid toward earthworm and enzymatic activities in soil', <i>Environmental Monitoring and Assessment</i> , vol. 88, p.424.
Perfluorooctanoic acid	PFDA	Terrestrial Invertebrate	Earthworm	<i>Eisenia fetida</i>		28 day	Soil	Survival, burrowing behaviour, body weight and clinical signs of toxicity	EC50		84 mg/kg	78.4		Zareitalabad, P, Siemens, J, Wichern F, Amelung, W & Joergensen, NG 2013b. 'Dose-dependent reactions of Aporectodea caliginosa to perfluorooctanoic acid and perfluorooctane sulfonic acid in soil', <i>Ecotoxicology and Environmental Safety</i> , vol. 95, pp. 39-43.
Perfluorooctanesulfonic acid	PFOS	Terrestrial Invertebrate	Earthworm	NA	NA	7 d	Soil	Toxicity	NOEC		289 mg/kg dwt	NF	3M (2003) Environmental and Health Assessment of Perfluorooctane Sulfonic Acid and its Salts. Prepared by 3M Company, with J Moore (Hollyhouse Inc.), J Rodericks and D Turnbull (Environ Corp.) and W Warren-Hicks and Colleagues (The Cadmus Group, Inc.), August 2003.	
Perfluorooctanesulfonic acid	PFOS	Terrestrial Invertebrate	Earthworm	NA	NA	14 d	Soil	Mortality	EC50		373 mg/kg dwt	NF	3M (2003) Environmental and Health Assessment of Perfluorooctane Sulfonic Acid and its Salts. Prepared by 3M Company, with J Moore (Hollyhouse Inc.), J Rodericks and D Turnbull (Environ Corp.) and W Warren-Hicks and Colleagues (The Cadmus Group, Inc.), August 2003.	
Perfluorooctanesulfonic acid	PFOS	Terrestrial Invertebrate	Earthworm	NA	NA	7 d	Soil	Mortality	EC50		388 mg/kg dwt	NF	3M (2003) Environmental and Health Assessment of Perfluorooctane Sulfonic Acid and its Salts. Prepared by 3M Company, with J Moore (Hollyhouse Inc.), J Rodericks and D Turnbull (Environ Corp.) and W Warren-Hicks and Colleagues (The Cadmus Group, Inc.), August 2003.	
Perfluorooctanesulfonic acid	PFOS	Terrestrial Invertebrate	Earthworm	<i>Eisenia fetida</i>		28 day	Soil	Survival	EC50		447 mg/kg	81.4		Waylward, S, Krenn, K, Megharaj, M & Naidu, R 2014. 'Effect of perfluorooctane sulfonate (PFOS) on survival and DNA damage of earthworm in OECD soil compared to natural soils, Centre for Environmental Risk Assessment and Remediation (CERAR) and Cooperative Research Centre for Contamination Assessment and Remediation of the Environment (CRC CARE), Australia.
Perfluorooctanesulfonic acid	PFOS	Terrestrial Invertebrate	Soil bacteria			40 d	Soil	Biomass	NOEC		500 mg/kg	78.4		Zareitalabad, P, Siemens, J, Wichern F, Amelung, W & Joergensen, NG 2013b. 'Dose-dependent reactions of Aporectodea caliginosa to perfluorooctanoic acid and perfluorooctane sulfonic acid in soil', <i>Ecotoxicology and Environmental Safety</i> , vol. 95, pp. 39-43.
Perfluorooctanoic acid	PFDA	Terrestrial Invertebrate	Soil bacteria			40 d	Soil	Biomass	NOEC		500 mg/kg	78.4		Zareitalabad, P, Siemens, J, Wichern F, Amelung, W & Joergensen, NG 2013b. 'Dose-dependent reactions of Aporectodea caliginosa to perfluorooctanoic acid and perfluorooctane sulfonic acid in soil', <i>Ecotoxicology and Environmental Safety</i> , vol. 95, pp. 39-43.
Perfluorooctanoic acid	PFDA	Terrestrial Invertebrate	Nematode	<i>Cenorhabditis elegans</i>		48 h	Soil	Mortality	EC50		973 mg/L	26		OECD (2008) SIDS Initial Assessment Report for Ammonium Perfluorooctanoate and Perfluorooctanoic Acid. Organisation for Economic Cooperation and Development, Paris, France. Accessed 25 February 2015 at http://webnet.oecd.org .
Perfluorooctanesulfonic acid	PFOS	Terrestrial Invertebrate	Earthworm	<i>Eisenia fetida</i>		14 d	Soil	Mortality	EC50		478 mg/kg dwt	81.4		https://www.researchgate.net/profile/Perfluorooctanoic-acid . Chemistry AND Ecology, VOL. 32, NO. 2, 103-116. http://dx.doi.org/10.1080/02757540.2015.1116524
Perfluorooctanoic acid	PFDA	Terrestrial Invertebrate	Earthworm	<i>Eisenia fetida</i>		14 d	Soil	Mortality	EC50		759.6 mg/kg dwt	81.4		https://www.researchgate.net/profile/Perfluorooctanoic-acid . Chemistry AND Ecology, VOL. 32, NO. 2, 103-116. http://dx.doi.org/10.1080/02757540.2015.1116524

Chemical	Abbreviation	Test Organism Group	Test Organism - Common Name	Species Name	Body Weight (kg)	Duration	Exposure Route	Effect	Endpoint	Result	Units	Data Quality Score (modified OECD's scale) (Bastley, et al., 2014)	Source	Reference
Perfluorooctanesulfonic acid	PFOS	Bird	Northern Bobwhite Quail	<i>Colinus virginianus</i>		21 weeks	Oral in diet	Reproductive endpoints	NOAEL		mg/kg bw/day	NS	Newsted, J.L., Jones, P.D., Coady, K., & Giesy, J.P. 2005. Avian toxicity reference values for Perfluorooctane Sulfonate. Environ. Sci. Technol. 39:9357-9362.	
Perfluorooctanesulfonic acid	PFOS	Bird	Bobwhite Quail	<i>Colinus virginianus</i>				Reproductive endpoints	NOAEL		mg/kg bw/day	NS	Newsted, J.L., Jones, P.D., Coady, K., & Giesy, J.P. 2005. Avian toxicity reference values for Perfluorooctane Sulfonate. Environ. Sci. Technol. 39:9357-9362.	
Perfluorooctanesulfonic acid	PFOS	Bird	Northern Bobwhite Quail	<i>Colinus virginianus</i>		21 weeks	Oral in diet	Reproductive endpoints	LOAEL		mg/kg bw/day	NS	Newsted, J.L., Jones, P.D., Coady, K., & Giesy, J.P. 2005. Avian toxicity reference values for Perfluorooctane Sulfonate. Environ. Sci. Technol. 39:9357-9362.	
Perfluorooctanesulfonic acid	PFOS	Bird	Bobwhite Quail	<i>Colinus virginianus</i>				Reproductive endpoints	LOAEL		mg/kg bw/day	NS	Newsted, J.L., Jones, P.D., Coady, K., & Giesy, J.P. 2005. Avian toxicity reference values for Perfluorooctane Sulfonate. Environ. Sci. Technol. 39:9357-9362.	
Perfluorooctanesulfonic acid	PFOS	Bird	Northern bobwhite quail	<i>Colinus virginianus</i>		21 w	oral diet	body weight, reproduction	NOEC		mg/kg bw/day	6/5	https://www.nicra.gov.au/chemical-information/Topics-of-Interest/subjects/per-and-poly-fluorinated-chemicals	
Perfluorooctanoic acid	PFDA	Bird	Chicken			2 w	Oral in diet		NOAEC		100mg/kg bw	NS	Environment Canada (2012a). Perfluorooctanoic Acid, Its Salts, and its Precursors. Environment Canada, Gatineau, Canada. Accessed 25 February 2015 at http://www.ec.gc.ca	
Perfluorooctanesulfonic acid	PFOS	Bird	White Leghorn			14 days post hatch	egg injection	increase in spleen mass	NOAEL		1 mg/kg egg wt	6/5	Developmental toxicity in white leghorn chickens following in ovo exposure to perfluorooctane sulfonate (PFOS). Reproductive Toxicology Volume 27, Issues 3-4, June 2006, Pages 207-218	
Perfluorooctanesulfonic acid	PFOS	Bird	Mallard			21 w	oral diet	body weight, reproduction	NOAEC		1.49 mg/kg/day	6/5	Environment Canada (2012a). Perfluorooctanoic Acid, Its Salts, and its Precursors. Environment Canada, Gatineau, Canada. Accessed 25 February 2015 at http://www.ec.gc.ca	
Perfluorooctanoic acid	PFDA	Bird	Domestic White Leghorn Chicken	<i>Gallus gallus domesticus</i>				Embryo survival	LC50		2.5 µg/g egg	7/1	Horden, M., Berger, U., & Engvall, M. (2016). Developmental toxicity of PFOS and PFDA in great cormorant (<i>Phalacrocorax carbo sinensis</i>), herring gull (<i>Larus argentatus</i>) and chicken (<i>Gallus gallus domesticus</i>). Environmental Science and Pollution Research, 23(11), 10855-10862.	
Perfluorooctanesulfonic acid	PFOS	Bird	White Leghorn			14 days post hatch	egg injection	increase in liver mass	NOAEL		2.5 mg/kg egg wt	6/5	Developmental toxicity in white leghorn chickens following in ovo exposure to perfluorooctane sulfonate (PFOS). Reproductive Toxicology Volume 27, Issues 3-4, June 2006, Pages 207-218	
Perfluorooctanesulfonic acid	PFOS	Bird	White Leghorn			14 days post hatch	egg injection	hatch rate	NOAEL		100mg/kg egg wt	6/5	Developmental toxicity in white leghorn chickens following in ovo exposure to perfluorooctane sulfonate (PFOS). Reproductive Toxicology Volume 27, Issues 3-4, June 2006, Pages 207-218	
Perfluorooctanesulfonic acid	PFOS	Bird	Domestic White Leghorn Chicken	<i>Gallus gallus domesticus</i>				Embryo survival	LC50		8.5 µg/g egg	7/1	Horden, M., Berger, U., & Engvall, M. (2016). Developmental toxicity of PFOS and PFDA in great cormorant (<i>Phalacrocorax carbo sinensis</i>), herring gull (<i>Larus argentatus</i>) and chicken (<i>Gallus gallus domesticus</i>). Environmental Science and Pollution Research, 23(11), 10855-10862.	
Perfluorooctanoic acid	PFDA	Bird	Chicken						NOAEC		100mg/kg bw	NS	Environment Canada (2012a). Perfluorooctanoic Acid, Its Salts, and its Precursors. Environment Canada, Gatineau, Canada. Accessed 25 February 2015 at http://www.ec.gc.ca	
potassium salt of PFOS (Where a different salt was used in the study, the result has been converted for this evaluation)	NA	Bird	Mallard Duck	<i>Anas platyrhynchos</i>	NA	21 week	Oral in Diet	mortality, body weight, liver weight, food consumption, liver weight (males) and gross pathology (females)	NOAEC		10 ppm	NF	BM (2004) 3M Fluorochemical EPA Submissions, CD No. 6, created 24 June 2004.	
potassium salt of PFOS (Where a different salt was used in the study, the result has been converted for this evaluation)	NA	Bird	Northern Bobtail Quail	<i>Colinus virginianus</i>	NA	21 week	Oral in Diet	mortality, body weight, liver weight, food consumption, liver weight (males) and gross pathology (females)	NOAEC		10 ppm	NF	BM (2004) 3M Fluorochemical EPA Submissions, CD No. 6, created 24 June 2004.	
potassium salt of PFOS (Where a different salt was used in the study, the result has been converted for this evaluation)	NA	Bird	Mallard Duck	<i>Anas platyrhynchos</i>	NA	21 week	Oral in Diet	mortality, body weight, liver weight, food consumption, liver weight (males) and gross pathology (females)	NOAEC		10 ppm	NF	BM (2004) 3M Fluorochemical EPA Submissions, CD No. 6, created 24 June 2004.	
potassium salt of PFOS (Where a different salt was used in the study, the result has been converted for this evaluation)	NA	Bird	Northern Bobtail Quail	<i>Colinus virginianus</i>	NA	21 week	Oral in Diet	mortality, body weight, liver weight, food consumption, liver weight (males) and gross pathology (females)	NOAEC		10 ppm	NF	BM (2004) 3M Fluorochemical EPA Submissions, CD No. 6, created 24 June 2004.	
Perfluorooctanesulfonic acid	PFOS	Bird	Northern Bobtail Quail	<i>Colinus virginianus</i>	NA		Oral	Survival/Liver weight/Young	NOAEL		10 ppm	NF	Gallagher, S.P., van Hoven, R.L., Beavers, J.B., and Jaber, M. (2003b). PFOS: A reproductive study with the Mallard. Project 454-109. Wildlife International Ltd.	
Perfluorooctanesulfonic acid	PFOS	Bird	Mallard Duck	<i>Anas platyrhynchos</i>	NA		Oral	Male Serum/Liver weight/Young	NOAEL		10 ppm	NF	Gallagher, S.P., van Hoven, R.L., Beavers, J.B., and Jaber, M. (2003b). PFOS: A reproductive study with the Mallard. Project 454-109. Wildlife International Ltd.	
Perfluorooctanesulfonic acid	PFOS	Bird	Mallard Duck	<i>Anas platyrhynchos</i>	NA		Oral	Female Serum/Liver weight/Young	NOAEL		10 ppm	NF	Gallagher, S.P., van Hoven, R.L., Beavers, J.B., and Jaber, M. (2003b). PFOS: A reproductive study with the Mallard. Project 454-109. Wildlife International Ltd.	
Perfluorooctanesulfonic acid	PFOS	Bird	Northern Bobtail Quail	<i>Colinus virginianus</i>	NA		Oral	Serum/Liver Concentration	NOAEL		10 ppm/kg	NF	Newsted, J.L., Coady, K., Beach, S.A., Gallagher, S., Giesy, J.P. (2000). Environ. Toxicol. Pharmacol. (Submitted).	
Perfluorooctanesulfonic acid	PFOS	Bird	Mallard Duck	<i>Anas platyrhynchos</i>	NA		Oral	Female Serum/Liver Concentration	NOAEL		10 ppm/kg	NF	Newsted, J.L., Coady, K., Beach, S.A., Gallagher, S., Giesy, J.P. (2000). Environ. Toxicol. Pharmacol. (Submitted).	
Perfluorooctanesulfonic acid	PFOS	Bird	Mallard Duck	<i>Anas platyrhynchos</i>	NA		Oral	Male Serum/Liver Concentration	NOAEL		10 ppm/kg	NF	Newsted, J.L., Coady, K., Beach, S.A., Gallagher, S., Giesy, J.P. (2000). Environ. Toxicol. Pharmacol. (Submitted).	
Perfluorooctanesulfonic acid	PFOS	Bird	Northern bobwhite quail and mallard				Oral in diet	mortality, growth, feed consumption, histopathology	NOAEC		100mg/kg bw	NS	Newsted, J.L., Jones, P.D., Coady, K., & Giesy, J.P. (2005). Avian toxicity reference values for perfluorooctane sulfonate. Environmental science & technology, 39(24), 9357-9362.	
Perfluorooctanoic acid	PFDA	Bird	Great Cormorant	<i>Phalacrocorax carbo sinensis</i>				Embryo survival	LC50		20.5 µg/g egg	7/1	Horden, M., Berger, U., & Engvall, M. (2016). Developmental toxicity of PFOS and PFDA in great cormorant (<i>Phalacrocorax carbo sinensis</i>), herring gull (<i>Larus argentatus</i>) and chicken (<i>Gallus gallus domesticus</i>). Environmental Science and Pollution Research, 23(11), 10855-10862.	
Perfluorooctanoic acid	PFDA	Bird	Herring Gull	<i>Larus argentatus</i>				Embryo survival	LC50		22.1 µg/g egg	7/1	Horden, M., Berger, U., & Engvall, M. (2016). Developmental toxicity of PFOS and PFDA in great cormorant (<i>Phalacrocorax carbo sinensis</i>), herring gull (<i>Larus argentatus</i>) and chicken (<i>Gallus gallus domesticus</i>). Environmental Science and Pollution Research, 23(11), 10855-10862.	
Perfluorooctanesulfonic acid	PFOS	Bird	Great Cormorant	<i>Phalacrocorax carbo sinensis</i>				Embryo survival	LC50		22.1 µg/g egg	7/1	Horden, M., Berger, U., & Engvall, M. (2016). Developmental toxicity of PFOS and PFDA in great cormorant (<i>Phalacrocorax carbo sinensis</i>), herring gull (<i>Larus argentatus</i>) and chicken (<i>Gallus gallus domesticus</i>). Environmental Science and Pollution Research, 23(11), 10855-10862.	
Perfluorooctanesulfonic acid	PFOS	Bird	Herring Gull	<i>Larus argentatus</i>				Embryo survival	LC50		22.95 µg/g egg	7/1	Horden, M., Berger, U., & Engvall, M. (2016). Developmental toxicity of PFOS and PFDA in great cormorant (<i>Phalacrocorax carbo sinensis</i>), herring gull (<i>Larus argentatus</i>) and chicken (<i>Gallus gallus domesticus</i>). Environmental Science and Pollution Research, 23(11), 10855-10862.	
Perfluorooctanesulfonic acid	PFOS	Bird	Mallard Duck	<i>Anas platyrhynchos</i>	NA		Oral	Female Serum/Liver weight/Young	NOAEL		10 ppm	NF	Gallagher, S.P., van Hoven, R.L., Beavers, J.B., and Jaber, M. (2003b). PFOS: A reproductive study with the Mallard. Project 454-109. Wildlife International Ltd.	
Perfluorooctanesulfonic acid	PFOS	Bird	Mallard Duck	<i>Anas platyrhynchos</i>	NA		Oral	Female Serum/Liver Concentration	NOAEL		50 ppm/kg	NF	Newsted, J.L., Coady, K., Beach, S.A., Gallagher, S., Giesy, J.P. (2000). Environ. Toxicol. Pharmacol. (Submitted).	
Perfluorooctanesulfonic acid	PFOS	Bird	Northern Bobtail Quail	<i>Colinus virginianus</i>	NA	21 w	Oral	Survival	NOAEL		61 mg/kg bw	NS	Newsted, J.L., Beach, S.A., Gallagher, S., Giesy, J.P. (2000). Arch. Environ. Contam. Toxicol. (Submitted).	
Perfluorooctanesulfonic acid	PFOS	Bird	Northern Bobtail Quail	<i>Colinus virginianus</i>	NA	22 d	Oral	Survival	NOAEL		70.3 mg/kg bw	NS	Newsted, J.L., Beach, S.A., Gallagher, S., Giesy, J.P. (2000). Arch. Environ. Contam. Toxicol. (Submitted).	
Perfluorobutanesulfonic acid	PFBS	Bird	Northern Bobwhite Quail	<i>Colinus virginianus</i>		21 weeks	Oral in diet	Reproductive endpoints	NOAEL		87.7 mg/kg	NS	Giesy, J.P., Nalle, J.E., Kim, J.S., Jones, P.D., Newsted, J.L. 2010. 'Aquatic Toxicology of Perfluorinated Chemicals', Reviews of Environmental Contamination and Toxicology Volume 202:1-52	
Perfluorobutanesulfonic acid	PFBS	Bird	Northern Bobwhite Quail	<i>Colinus virginianus</i>				Reproductive endpoints	NOAEL		87.7 mg/kg	NS	Giesy, J.P., Nalle, J.E., Kim, J.S., Jones, P.D., Newsted, J.L. 2010. 'Aquatic Toxicology of Perfluorinated Chemicals', Reviews of Environmental Contamination and Toxicology Volume 202:1-52	
Perfluorooctanesulfonic acid	PFOS	Bird	Mallard Duck	<i>Anas platyrhynchos</i>	NA		Oral	Survival	NOAEL		141 mg/kg	NS	Newsted, J.L., Beach, S.A., Gallagher, S., Giesy, J.P. (2005). Arch. Environ. Contam. Toxicol. (Submitted).	
Perfluorooctanesulfonic acid	PFOS	Bird	Mallard Duck	<i>Anas platyrhynchos</i>	NA		Oral	Survival	NOAEL		150 mg/kg	NS	Newsted, J.L., Beach, S.A., Gallagher, S., Giesy, J.P. (2005). Arch. Environ. Contam. Toxicol. (Submitted).	
Perfluorooctanesulfonic acid	PFOS	Bird	Mallard			21 d	Oral in diet	Survival	NOAEL		628 mg/kg bw	NS	Newsted, J.L., Beach, S.A., Gallagher, S., P., & Giesy, J.P. (2006). Pharmacokinetics and acute lethality of perfluorooctanesulfonate (PFOS) to juvenile mallard and northern bobwhite. Archives of environmental contamination and toxicology, 50(3), 413-420.	
Perfluorooctanesulfonic acid	PFOS	Bird	Northern Bobtail Quail	<i>Colinus virginianus</i>	NA	21 w	Oral	Survival	NOAEL		117 mg/kg	NS	Newsted, J.L., Beach, S.A., Gallagher, S., Giesy, J.P. (2000). Arch. Environ. Contam. Toxicol. (Submitted).	
potassium salt of PFOS (Where a different salt was used in the study, the result has been converted for this evaluation)	NA	Bird	Northern Bobtail Quail	<i>Colinus virginianus</i>	NA	15 d	Total in Diet	Survival	LC50		2200 mg/kg food	NS	ECDC (2002). Hazard Assessment of Perfluorooctane Sulfonate (PFOS) and its Salts. ENV/HA/NO(2002)17/FINAL. / JM (2003) Environmental and Health Assessment of Perfluorooctane Sulfonic Acid and its Salts. Prepared by JM Company, with J Moore (Hollyhush Inc.), J Rodericks and D Turnbull (Environ Corp.) and W Warren-Hicks and Collogaux (The Cadmus Group, Inc.) August 2003.	
Perfluorooctanesulfonic acid	PFOS	Bird	Mallard Duck	<i>Anas platyrhynchos</i>	NA	16 d	Oral	Survival	LC50		600 mg/kg	NS	Newsted, J.L., Beach, S.A., Gallagher, S., Giesy, J.P. (2005). Arch. Environ. Contam. Toxicol. (Submitted).	
potassium salt of PFOS (Where a different salt was used in the study, the result has been converted for this evaluation)	NA	Bird	Mallard Duck	<i>Anas platyrhynchos</i>	NA	15 d	Total in Diet	Survival	LC50		628 mg/kg food	NS	ECDC (2002). Hazard Assessment of Perfluorooctane Sulfonate (PFOS) and its Salts. ENV/HA/NO(2002)17/FINAL. / JM (2003) Environmental and Health Assessment of Perfluorooctane Sulfonic Acid and its Salts. Prepared by JM Company, with J Moore (Hollyhush Inc.), J Rodericks and D Turnbull (Environ Corp.) and W Warren-Hicks and Collogaux (The Cadmus Group, Inc.) August 2003.	
Perfluorobutanesulfonic acid	PFBS	Bird	Northern Bobwhite Quail	<i>Colinus virginianus</i>		21 weeks	Oral in diet	Reproductive endpoints	LOAEL		87.7 mg/kg	NS	Giesy, J.P., Nalle, J.E., Kim, J.S., Jones, P.D., Newsted, J.L. 2010. 'Aquatic Toxicology of Perfluorinated Chemicals', Reviews of Environmental Contamination and Toxicology Volume 202:1-52	
Perfluorobutanesulfonic acid	PFBS	Bird	Northern Bobwhite Quail	<i>Colinus virginianus</i>				Reproductive endpoints	LOAEL		87.7 mg/kg	NS	Giesy, J.P., Nalle, J.E., Kim, J.S., Jones, P.D., Newsted, J.L. 2010. 'Aquatic Toxicology of Perfluorinated Chemicals', Reviews of Environmental Contamination and Toxicology Volume 202:1-52	
Perfluorobutanesulfonic acid	PFBS	Bird	Bobwhite quail	<i>Colinus virginianus</i>		21 w	Oral in diet	reduction in eggs	NOEC		900 mg/kg	NS	NICNAS, 2005 - NICNAS (2005). Existing Chemical Hazard Assessment Report: Potassium Perfluorobutane Sulfonate. National Industrial Chemical Notification and Assessment Scheme, Sydney, Australia. Accessed at http://www.nicra.gov.au	

Perfluorobutanesulfonic Acid	PFBS	Bird	Bobwhite quail	<i>Colinus virginianus</i>	10 d	Oral in diet	Mortality	1000	100,000	2mg/kg	https://www.nicnas.gov.au/chemical-information/topics-of-interest/subjects/per-and-poly-67-fluorinated-chemicals	NICNAS, 2005 - NICNAS (2005). Existing Chemical Hazard Assessment Report: Potassium Perfluorobutane Sulfonate. National Industrial Chemical Notification and Assessment Scheme, Sydney, Australia. Accessed at http://www.nicnas.gov.au .
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